THE
ITEMS OF INTEREST

A Monthly Magazine

OF

DENTAL ART, SCIENCE AND LITERATURE.

EDITED BY

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ITEMS OF INTEREST.

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ORIGINAL COMMUNICATIONS.

PORCELAIN DENTAL ART.

W. A. Capon, D.D.S., Philadelphia.

There is probably no subject now exciting greater interest in our profession than porcelain as a substitute for unsightly and unreliable operations, whether it be a portion or whole tooth, or for several teeth in form of a bridge, or of a partial denture. This class of work presents many ways of overcoming disagreeable deformities and defects in an artistic and acceptable manner, both to patient and operator, enabling us to reach a perfection long desired in dental art. The experimental stage is passed, for the work has proven reliable and satisfactory under the most discouraging conditions. A few facts may be acceptable.

The requirements for success are many, and those who have given this subject some consideration will be better able to appreciate this fact than those who have yet to make their first attempt.

Porcelain dental art embraces three distinct classes of work: Fillings, crowns and bridges. Fillings are the most difficult, more difficult than any other kind of filling in use, because mechanical art and science are combined in one little operation. A porcelain filling properly made and adjusted will be almost unnoticeable even to the professional eye. Being held in position more by adhesion of cement than by mechanical means, it adds strength to a frail tooth, and is also a non-conducting material, which is an important consideration when operating near the pulp. This filling is especially indicated in labial and large proximal cavities and contoured tips, and very desirable in broken centrals, or where excessive abrasion has caused much loss of tooth. In such, the use of gold means a long, tedious operation, and always conspicuous, attracting observation to the defect instead of hiding it, and very frequently the tooth structure is such that plastic work is almost imperative.

Preparation for this work consists of enough separation to allow of drawing the impression from cavity without change of form and the insertion of filling with freedom, and proper excavation

of cavity which others, inasmuch that no undercut is made till after the filling is made; also making the edges square, avoiding the use of sandpaper, or the filling will have an overhanging edge, making a coarse joint by retaining cement. The platinum foil used for impression is gage .001, or about 50, and is first thoroughly annealed by placing it in a furnace and giving it heat required. For fusing porcelain, the object of using the furnace is to protect from the gas flame, which insures the softness necessary for a good impression. If this point is not observed there will be a spring in the metal that will prevent burnishing to walls and edges of cavity. Rubber tips and amalgam burnishers of various sizes are used to take impression, using care not to have a fold on the edge, which is especially liable in large proximal work. Unless the cavity is very shallow the impression will have very little bottom, but this is of no importance and cannot be avoided. This is easily remedied by using care not to force the porcelain in the matrix too far. Gently tapping the edge of the mold will settle the porcelain and give it a smooth, wet surface. The excessive moisture is withdrawn by laying the work on a clean napkin or bibulous paper; then carefully dried by heat in the furnace, which is gradually increased, till sufficient for fusing. This part is called first baking or biscuiting and, while it is not particularly necessary to have a glossy surface, that fact will show that maximum shrinkage has taken place. The filling is now placed in cavity and edges thoroughly burnished to the tooth, which are always drawn from original form by contraction of porcelain. This will be more noticeable in large fillings because of smaller surface of platinum to resist the spheroidal tendency of the porcelain while in a molten state.

The filling is now ready for finishing, and it is just at this stage of the work where it differs so materially from any other filling, because it is being made out of the mouth and away from the patient; only practice and memory can be a guide as to the proper shape, shade and quantity of porcelain required for correct work, allowance for a shrinkage of fully a fifth must be made and care taken not to have an overhanging edge, or the joint will be coarse. A filling can be baked several times, if the porcelain is good; otherwise repeated heating will effect both shade and contour. After the platinum is removed, it cannot be put in the heat again. When the filling is finished, the platinum is gently pulled of by means of small pointed pliers, commencing at edge of filling and working to the middle, which will leave edges unbroken.

Undercuts are now made with diamond or thin hard rubber and corundum disks, and filling cemented in position. It is very neces-

sary that large tips and corners should have platinum pins or wire loops; these make the work difficult and tedious, as soldering is avoided, if possible, on account of its effect on such a small body of porcelain. A well-made filling will have the graded shades of the natural tooth; also the proper density and gloss with edges nicely fitting cavity line, allowing for little grinding, as polishing discolors the cement line and takes a long while to become clean. The cement must be one of medium speed in setting, and mixed to a creamy consistency, so that very little pressure is required to put the filling into position. If cement is unyeilding, or sets too rapidly, immediate withdrawal is recommended, or the results will be unsatisfactory. Many dentists make this mistake, not only with this work but in placing crowns and bridges, forgetting that cement mixed beyond a proper thickness loses its tenacity, which is the quality required.

After removing excess cement, hot air should be applied, and the operation finished by covering the whole work with paraffin wax, chloro-percha, sandarac or rubber varnish, leaving trimming till a later sitting, when the cement will be thoroughly hard.

One of the principal assertions used as an argument against this work has been the solubility of the cement to such an extent as to loosen the filling. Theoretically, this would seem probable; but, after years of practical tests in all sorts of mouths, and under all conditions, the cement remains firm if the joints are good. The use of rubber-dam is not particularly advantageous when doing this work, unless in some cases where long dryness is particularly necessary; and under no consideration should it be used till the filling is complete and ready for insertion, as the dry tooth will be far from its natural shade.

Molar fillings are to be avoided, unless very accessible, because of the difficulty in getting a proper impression; and especially so on masticating surfaces, where the filling must be particularly strong and tight to withstand the force required in chewing.

Pinhead and shallow labial cavities are very tedious; and frequently the shade is entirely destroyed by the cement. However, time will remedy this defect very considerably, for porcelain fillings improve in appearance by age.

The shade of tooth is obtained by numbered buttons, corresponding with bottles of porcelain body of same number, and may range in quantity of shades from one dozen to two dozen. My assortment consists of twenty, and of different manufactures, but all of the same standard, and requiring the same heat necessary for continuous gum work, which is considerably less than "block body," or that used for manufacturing teeth.

Cleanliness must be observed in using porcelain and cinders, plaster or dust of any kind carefully kept from the mixing slab; while the water should be perfectly clean—and, if possible, use distilled or filtered rain water.

One of the most important points to be considered in the baking of porcelain is the furnace. Every dentist is familiar with the coke or coal oven for continous gum work, but comparatively few are informed on the newer furnaces adapted for smaller work, such as crown- or bridge-work. They consist of open flame and fire clay, or platinum muffles. Fire clay is preferable on account of purity of color and less tendency to gas the porcelain, but requires more time for heating than those made of platinum, while the latter are more convenient for quick and small work, and a heat of 3,300° F. can be obtained in from three to five minutes from time of lighting. The most scientific and perfect of all furnaces is the recent invention of Dr. C. H. Land, of Detroit, Mich., it requires no forced draft, and can be used with refined oil, crude petroleum, gasoline, or natural or illuminating gas. All furnaces, whether for coke, gas or oil, should be capable of a heat not less than 3,000° F., as true porcelain requires that to insure color and strength.

The greatest care and vigilance is required by the most experienced porcelain workers to prevent "gasing," for, as has been truly said, "during the process of combustion in furnaces, whether the fuel is anthracite, coke or gas, carbon in the form of decomposed hydrocarbon, or smoke or carbonic oxid, may be present in varying proportions, according to the amount of air passing through the combustion chamber, and in one or both forms is extremely liable to penetrate to the interior of the muffle, here to combine with the oxygen contained in the porcelain to form CO_2 bubbles, thus the body and coloring matter become deoxidized, making the mass porous." When this occurs the color will vary from white to a dull grey, according to the amount of carbon entering the muffle. Sometimes the discoloration is very slight, and would pass the unexperienced eye as being correct till compared with a perfect baking. It is useless to attempt a remedy by patching or covering parts affected; those portions should be destroyed and pure material added and fired again till satisfactory, for a better jet can be made and shade and shape quite equal to what can be bought, and the whole operation consuming very little more time, and a last but a very important part is the fact that you have created a more favorable impression with the patient, for in no branch of dentistry is there a better opportunity to do a little legitimate advertising.

[TO BE CONTINUED.]

SOUTHERN DENTAL ASSOCIATION.

Reported by Mrs. J. M. Walker.

[CONTINUED FROM PAGE 725, Dec., 1894.]

HYGEIA HOTEL, OLD POINT COMFORT, VA.,

August 2d to 6th, 1894.

Dr. H. B. Noble read a voluntary essay from Dr. G. N. Johnson, Concord, N. H., entitled "Unprofessional Prosthetics."

A paper by Dr. W. G. Browne, Atlanta, Ga., entitled "Varnishing Cavities," was read by title, and ordered printed in the transactions.

Also, a paper by Dr. William N. Morrison, St. Louis, entitled "Care of Infant's Teeth."

Dr. Morrison also offered the following brief report on therapeutics:

St. Louis is the headquarters of manufacturing chemists, and many valuable proprietary remedies are produced there, and they have good words said for them in all parts of the world. In using these, we should not forget the good old-fashioned remedies, that have done such valuable service for so many years—creasote, sal-ammoniac, borax, and sulphate of copper. For mucous patches in the mouth, one application with crystal sulphate of copper is sufficient.

The Chair: It is a subject of extreme embarrassment to pass over so many papers without discussion, but from lack of time discussion is impracticable.

Dr. H. B. Noble (Washington, D. C.), read the following report from the Committee on

LITERARY AND VOLUNTARY ESSAYS.

(See December ITEMS.)

Dr. T. M. Allen (Birmingham, Alabama): That is one of the best reports I have ever heard from that committee. It is short and to the point. Many of the papers to which we listen would be greatly improved if they were "boiled down."

Dr. George J. Friedrichs: I second that motion.

Dr. V. E. Turner read a supplementary report, including a number of bills for expenses incurred.

Dr. R. R. Freeman: I move that all bills endorsed by the Executive Committee, be allowed and ordered paid without further action. So ordered.

Dr. J. N. Crouse: I have with me all my papers and vouchers, notes and mortgages of the Dental Protective Association. I ask that the Southern Dental Association appoint a committee to act

with a similar committee from the American Dental Association, to examine these documents and see if everything is correct. The precedent was established at the meeting held at Excelsior Springs, and it gives strength and moral force to our work.

The Chair appointed Drs. R. R. Freeman and V. E. Turner as said committee.*

The consideration of the President's address was made the special order of business for Monday morning. Adjourned.

Called to order 9 A.M., Monday, August 6th. Dr. J. Y. Crawford, chairman of the committee appointed three years ago to investigate charges brought against Dr. Holcomb, and which, at the meeting at Lookout Mountain, requested further time, reported that the evidence was insufficient to prove Dr. Holcomb guilty of any unprofessional acts since he had become a member of the Association. He did not think it was competent to investigate what had occurred before he became a member of the Association.

It having been ascertained, from reference to the Treasurer's books, that Dr. Holcomb's dues had been kept paid up during this protracted investigation, on motion of Dr. W. G. Browne, the charges were dropped, and the committee discharged.

On the recommendation of the Executive Committee, Dr. M. F. Finley, Washington City, was elected to active membership.

Dr. H. E. Beach, of the Committee on Revision of the Constitution, stated that he had done some individual work along this line, but not having been able to secure a meeting of the committee he had no report to make.

By unanimous consent the committee was continued another year. The committee consists of Drs. H. E. Beach, E. S. Chrisholm, and B. H. Catching.

Dr. J. R. Woodley: On this, the last day of our meeting, we have a sacred duty to perform in honoring the memory of the many prominent members of the Association who have passed away in death during the last two years. I hope the Association will take proper steps.

On motion of Dr. Crawford, Drs. Woodley, Peabody and Freeman were appointed a Committee on Necrology, with instructions to prepare suitable resolutions to be spread on the minutes.

Dr. S. W. Foster (Secretary): Among the items of unfinished business I call attention to a resolution offered, but not acted on,

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*The American Dental Association, at the meeting held August 7-10, appointed Drs. H. A. Smith, C. E. Esterly, and Louis Jack, to act with the above committee. Having examined the books, papers and vouchers offered by Dr. Crouse, on behalf of the Dental Protective Association, the joint committee reported that they had found everything correct and satisfactory. The report was ordered made part of the transactions of the Southern Dental Association.

that the Association employ a regular salaried reporter, to be known as the Official Reporter of the Association.

Dr. J. Y. Crawford: I rise to a point of order. We have yet much important business before us. The special order of business for this morning was the consideration of the President's address. I move that we now proceed to that order of business.

The President called the First Vice-President, Dr. S. B Cook, to the Chair.

Dr. Boozer: The Committee on the President's Address reported a series of topics for discussion. I move that we take them up in the order presented by the committee.

Dr. H. E. Beach: If we take them all up *seriatim* we will not finish to day. It would be better to let each member make remarks on one particular point than devote an hour to the whole address.

Dr. Catching: The committee placed before us only salient points, and we had better take them up in the order given.

Dr. Noble: Let the Secretary read the report by sections.

The Secretary: The first point was the duty of National Associations toward State and local societies.

Dr. L. P. Dotter: Let the members of the committee, who opened the paper and made the report, open the discussion.

Dr. Jno. S. Marshall: Dr. Taft, who offered the report, is now engaged in the meeting of the National Association of Faculties, and we had better proceed without him. We are competent to discuss the valuable suggestions placed before us. There is one suggestion which, though very valuable would require funds to carry it out. It is the appointment of commissioners to examine into and report on the scientific work of individuals. The experiments and study necessary to go over such work, to ascertain if correct deductions have been reached, would require time and money, and unless the Association is in position to vote funds for such a purpose it would fall through. If it can be carried out I will be glad to vote for money to be spent in such scientific investigation.

(By request, Dr. Catching read the report of the committee again, per page 583, October, 1894.)

Dr. V. E. Turner: I would suggest as the most practicable plan, that a committee be appointed to report at the next meeting, as to the most important questions to be investigated and the amount they judge sufficient for this purpose. Let the Association then raise that amount, and the result of such investigations would be regarded as final authority for the conclusions reached.

As to the efficiency of State Examining Boards and their scope of usefulness, the powers of the Boards are defined by the

law of the State creating them, and it is useless for us to discuss that point. The bone of contention seems to be the examination of the holders of diplomas. It has been said here that a diploma should be the passport to practice in any and every State. At one time, before the organization of the National Board of Faculties, it was not within the power of many of the State Boards to pass on the reputability of the colleges, and it was considered the safest plan to examine all applicants alike. Dental laws were passed. We went before the State Legislatures and said that in order to keep in the line of progress it was necessary to have such and such a law. The Legislatures complied and gave us what we wanted. Shall we now go to them again and say: We don't want it any more?

We must remember that the examination of men with diplomas does not militate against progress in dentistry; then why should we decry the laws that we have asked for? The Association cannot deal with the Examining Boards; it is for the Legislature of each State, and we should not be in too great haste to wipe out what we have so recently advocated as a step in the line of progress.

Dr. Fr. Peabody: The State Boards were an absolute necessity, but State laws are not unalterable. The progress of all large bodies is necessarily slow, and some movement must now be made to overcome the existing state of affairs in regard to the fact that no State recognizes the examinations in other States. I have been in practice forty years, but if I wanted to locate in Mississippi I would have to go before the Examining Board and pass an examination! If I concluded to go to Georgia, then I would have to pass another examination, and the same again in Alabama.

One State does not recognize the examination given in another. If one State would start the right thing, it would serve as a nucleus around which other States would gather. If all the colleges graduated only those really entitled to the degree, there would be no necessity for graduates to go before the boards.

But, unfortunately, some of the colleges are working for the dollars rather than to impart knowledge. The proper courtesy from one State to another would be to recognize the fact that probably the best men in the State were chosen to positions in the Board, and that are competent to examine all applicants, and having placed their signatures to the certificate, that they have been found eligible to practice; that should be all that is necessary to admit them to practice.

Dr. B. H. Smith: As the author of the suggestions in the address, I will say that my proposition does not seem to be comprehended. I said, while all recognize the beneficial influence and the good

work done by the Examining Boards, ascribing to them a certain police power as guardians of the public safety, I would suggest the appointment of a committee to act with committees from other Associations in the work of preparing an ideal uniform dental law. Dr. Turner said we could not request the State Legislatures to annul the laws we had demanded in the interests of progress, but this could very well be done, on the ground that the laws have accomplished the special work for which they were designed.

Dr. Edwards (Louisville, Ky.): It has been assumed that there is an antagonism between the colleges and the Examining Boards, but I fail to see why such an impression should prevail. The fact is, if it had not been for the Examining Boards the colleges would not have attained their present high standard, turning out only thoroughly competent men. The Examining Boards were necessary to compel men to go to college, in order to become perfectly equipped. Before these laws were enacted, two-thirds of the men calling themselves dentists were not competent to practice; they were non-graduates and men of no education. The good effect of these State laws was to drive men to the dental colleges. That was the chief aim and object of the laws, to force men to prepare themselves thoroughly for the practice of dentistry. As to the propriety of every Examining Board recognizing the certificates of every other Board, that might be possible if all Boards were appointed in the same manner. But some are chosen by the State Association and others are appointed by the Governor of the State. In what respect is the Governor of a State qualified to select the most competent men to serve on Medical or Dental Examining Boards? If it is left to the State Association to select them we can safely trust to their choice. In Kentucky it is a matter of very serious consideration who shall be placed on the Examining Board.

Dr. J. Hall Moore: There is no conflict now between the National Association of Faculties and the National Board of Examiners. It is recognized that the Examining Boards have done a good work in elevating the standard of professional education.

Dr. Fr. Peabody: When the laws were first enacted, and the first boards established, it was necessary to examine holders of diplomas, for diplomas were sometimes a lie; it was very easy for some to get through a dental college with very little education. But the Examining Boards have forced the colleges to a course of three years, instead of two, and they have made the colleges, which sought only the dollars, seek something else. Men don't inquire now where you got your diploma, but where you got your education. As to the unification of dental laws, that is a subject for the

National Association of Examiners to study; that is a part of the work laid out for this year's meeting, of devising the means to securing a uniform dental law for all the States, with a uniform method of appointing the Boards, so that an examination held in one State should be good in all others. That is our present work, and I hope for great results, and that we may eventually go before our State Legislatures with a uniform law, which shall be satisfactory to the colleges, to the Examining Boards, and to the profession. It is a hardship to feel that men who are prominent in the profession—men whom we delight to honor, would, if desirous of changing locations, be compelled to go before an Examining Board and be put through like some schoolboy.

Dr. Jno. S. Marshall: If it could be so arranged that the State Examining Boards could be represented and participate in the final examinations of the colleges, and sign the diplomas, that would prove the reputability of the college. A diploma thus signed should be a passport to practice in any State of the Union. The Examining Board of the several States would be bound to recognize such diplomas. It is not necessary that a man should be re-examined in all the branches that he studied when in college. I doubt if any of the members of the State Examining Boards could stand the final examination in one of our best colleges. A man who has been engaged in a busy practice for a number of years gets rusty on those branches for which he has no constant practical use. I know I could not pass the examination myself in, say chemistry, because there have been many changes made in the teaching of that science, and I have not tried to keep up with it. So with others, perhaps, in anatomy and other branches. And so it is not fair for the State Boards to require these college examinations from men of experience and known ability.

Dr. H. B. Noble: That is exactly the position I took in my paper: that the Examining Boards should have representatives present at the colleges before diplomas are granted. Let the representatives of the State Boards so endorse the diplomas that they shall go in every State. In lieu of the suggestion in my paper, I will endorse a committee of representatives from the two National Associations, from the National Association of Faculties and the National Board of Examiners. Such a combination would certainly result in some practical outcome.

Dr. Marshall: My point particularly is that State Boards should have representatives at the final examinations of the students in our senior classes; let them see all the written papers, look over and assist in marking them, take part in the oral examinations, and satisfy themselves that the students are properly qualified,

and then sign those diplomas as a passport to practice in any State whose Examining Board is thus represented.

Dr. J. Y. Crawford: In the solution of this question there are two questions to be answered, How are the State Boards of Dental Examiners created? What are the functions of the State Boards? As to the functions of the State Boards, a State Board is, first, a judicial body; second, a clerical body; third, an executive body; and fourth, a supervisory body. That the State Board is the highest judicial body in the State is the decision of the Supreme Court of the United States. There is no going behind the actions of the State Board. It is the highest authority on the subjects over which it has jurisdiction. How does a Board become a judicial body? Not through appointment by a State Society. They have no authority to confer judicial powers; to create judicial bodies.

Dr. V. E. Turner: If the State law provides that the Society shall appoint the Board?

Dr. Crawford: It is not constitutional.

Dr. Peabody: The Association of Kentucky is a chartered body, for the purpose of creating a State Board of Examiners, who are elected by the State Association.

Dr. Crawford: I doubt if this decision would have the legal authority of a judicial body. A State society may recommend the proper men to the Governor, but the Governor's appointment alone confers judicial powers. I have confidence in the integrity of our State officials to do what is right when it is put before them.

Dr. Friedrichs; All this is class legislation.

Dr. Crawford: That objection has been raised by the opponents of law, but it is mere subterfuge. No law that is right and just can be classed as class legislation.

Dr. Friedrichs: These laws are all for the protection of the profession, not of the people. They do too much toward keeping out good men. It is time to turn about face, and get out some of those who are already in. A Board thus created, with judicial and supervisory and clerical powers, claims authority over the individual, which is contrary to the spirit of American citizenship. It deprives him of the right of going wherever he chooses to go and honestly earn his living. The law of the State of Virginia deprives me from the use of my functions as a free citizen. I can't go into the State of Virginia and practice dentistry because I am not a dental graduate. I have a diploma, but it is only honorary. The only leg I have to stand on is my M.D. So I cannot even go before the State Examining Board of Virginia; so I am deprived of my legal rights as an American citizen. That is contrary to the spirit of our institutions. It is dangerous doctrine, and I

believe it is illegal. With all due respect for the great Commonwealth of Virginia, I believe that if I were to locate in Virginia and declined to appear before the Board, I believe if I went before the courts and claimed my rights as an American citizen, I believe I would beat the Examining Board. The question has never been tried on that line. If Alabama licenses a man, declares him competent to practice, and he practices in Alabama five years and then moves to another State, that State declares him not competent to practice there; that gives Alabama a slap in the face, and is a total disregard of the rights of Alabama. You may say what you please, but that is the doctrine of State rights, and it is a doctrine I love.

Dr. Donally (Washington City): The main question for us is, How to unify and harmonize our State dental laws? There are such incongruities and inconsistencies between the laws of the different States that it will be very difficult to get all the State Legislatures, to so alter and modify the laws as to fix a standard of educational standing, as shall bring all into practical unity. Could this be done, then a State certificate or a college diploma would be universally recognized. This is in no sense in opposition to the colleges. It is simply a matter of conditions. When all requirements are complied with, every diploma will be recognized in all the States. The practical point is to draft a law which can be endorsed by the Board of Faculties, by the American and by the Southern Associations; the profession would unite on it, and it would go before the Legislature of one State after another, until all had adopted it. It would be such a long step in advance that any State that failed to adopt it would be at a great disadvantage. Dr. Turner said the States could not ask for a change, but it would go on the ground that the old laws have done what they were designed for. Changes must come in the march of progress. It puts a man at a great disadvantage to have to contend with this great diversity of dental laws in the different States. It is to be hoped that something practical will come out of all this. (Dr. Donally then referred to a Supreme Court decision in a case in West Virginia, found in *Cosmos* for 1890, or early in 1891.)

Dr. R. R. Freeman: We are drifting toward a point on which all can unite—*the truth;* there is no conflict in truth. The dental profession is working in this matter for the good of the whole people, and the people and the profession will unite to uphold and sustain the law.

The State Examining Boards have police authority; the leaven in the lump is working, and if we sincerely desire to do the right, we will reach the end; it is in the spirit of the times; in the atmos-

phere. The people see that we are seeking their good. The Legislature delegates powers to the Board for the good of the people. The time will soon come when we will have the same method as in the law, not an examination of the individual, but an examination of credentials. If his credentials are not all right, all the diplomas, and all the red and blue ribbons in the world, will not admit one who is proved a charlatan.

Dr. E. P. Beadles: If all the States had the same law, there would be no further trouble. The idea of Dr. Marshall of having representatives from the State Boards pass on the students before diplomas are awarded is impracticable. It would not be possible for a representative from each State Board to go to all the colleges in all the other States; there are too many State Boards, and too many colleges, and too many students. Since I have been a member of the State Board I have not known a single man to fail but those who deserved to fail, nor one to go through unless he deserved to go through. Men from the colleges of high standing (not those of mushroom growth) never fail. There are some who manage to slip through—*to cheek through*—but the Boards can soon see who is competent and who is not.

Dr. Friedrichs: Dr. Freeman spoke for the people, but I speak for the profession. A man who has a diploma or a certificate from a State Board should be able to go from one State to another, as he pleases, without being put to any further expense or trouble. If a man has exhausted his field he should have the right to seek another.

Dr. Crawford: One of the suggestions of the President's address had reference to the appointment of commissions to settle mooted questions in dental practice. Your committee submitted that point to the Society for consideration. We had expected a paper to be read on the treatment and filling of root canals, and had designed asking that a committee be appointed to investigate and test each method presented. For this purpose I had prepared a number of teeth imbedded in plasters, that each individual might fill the root canals according to the method he advocated. The teeth were then to have been submitted to the committee for the purpose of making sections, thus ascertaining which of the different methods advocated would prove best fitted to fill all the requirements of root-canal filling. No such paper was read, however; the subject was not discussed. The teeth are here, imbedded in plaster, the roots unfilled. I will leave them with the Society.

Dr. John S. Marshall: I now move that a commission of three members be appointed by this Association to take under consideration and examination such "mooted questions in practice"

as may be referred to it by the Association, and that they shall make an annual report to the Association, with such conclusions and suggestions as may grow out of their individual and collective work. Carried.

It was further decided that this be a permanent committee, appointed for one, two and three years, as their work could not be completed in one year.

Dr. W. G. Browne: I would suggest that the number be raised to five.

Dr. McKellops: The committee will never meet if it is too large.

Dr. John S. Thompson. Let the Committee on the President's Address be continued another year, that the topics presented be further discussed. There are many valuable suggestions in the committee's report that have not been considered. This report might be taken up at our next meeting.

Dr. Crawford: The Association is not competent to carry the President's address of one meeting, over to the next.

Dr. Thompson: It is competent to carry over the discussion of topics.

Dr. H. E. Beach: I rise to a point of order. The time has passed allotted to the discussion of the President's address. Subject passed.

Dr. McKellops. As is well-known to many of you, I have devoted many years to the accumulation of a dental library, and I have succeeded in getting together the largest dental library in the world. I am ready to purchase any additional books that are for sale, if the full descriptive title, with date of publication, is sent to me.

[TO BE CONTINUED.]

You will perhaps laugh and think I am joking, if I tell you that one of my children had a tooth filled before he was one year old. But it is a fact. The little fellow was about nine months old when the "upper central incisors" came through. I soon noticed that one of them was marred by a little round yellow spot on its face, near the cutting edge. In a few weeks this formed a cavity of decay. Fearing the toothache for my tender babe, when he was eleventh months old, I seated myself in the chair of the dentist, with the baby *sound asleep in my arms.* * * * * And the cavity was filled with white filling.

Letters from a Mother to a Mother, Fourth Edition.

DENTAL ENGINES.

Dr. M. Palmer, Neb.

I have often wondered if dental engines could not be much improved. Certainly the driving arrangement lacks satisfactory service. Nearly all engines are driven by a spring, cable, or cord, which is elastic. Now the pressure of the hand cannot be uniform, and therefore the bur, drill or stone has uneven pressure and meets uneven resistance. This causes hitches and jumps unless there is a balance-wheel on the shaft of the hand-piece, and then the arrangement is cumbersome and heavy. I think I am safe in saying that no engine of any manufacture is entirely satisfactory in this respect. What is wanted is an engine hand-piece with a rapid, *steady* motion under varying loads and pressure, and this can never be with an elastic communication from the source of power to shaft of hand-piece.

Cannot some ingenious man give us something that applies the power direct in the hand-piece, with a small balance-wheel running at a very rapid rate, to take the place of a large balance-wheel running comparatively slow? Cannot a small water motor be made inside the hand-piece that uses some type of Pelton-wheel with a jet of water under high pressure, and supplied with a small rubber tube for supply and a larger one for return? In many cities the street water supply would do, or a water motor could be used to pump water under a high pressure into a feed reservoir for the engine, or in these days of "electro-mania" an electric motor could be used for the purpose.

In 1891 there was brought out the Laval steam turbine, which gets more force out of a steam supply than any other make of engine, and it is exceedingly small, too; so that a twenty horse-power engine could easily be held in one hand. Now, what is the reason that this arrangement would not work with compressed air (warmed if need be), and a very small motor giving plenty of power could be placed in the hand-piece. This motor has no valves and nothing to look after except to oil it. It runs very fast, ten to thirty thousand a minute, and could be reduced with cog gearing and certainly give great power and uniform speed. The air pressure need not be over fifty to one hundred pounds to the square inch, and could be supplied by water, electric or foot-power, and certainly such an arrangement would not be more expensive, nor as much so, as some of the present electrical arrangements. There is a demand for something better than the present driving power of our drilling apparatus, and any inventor who gives us something really good and simple is sure of a good return for his pains.

ANTISEPTICS FOR OUR PATIENTS.

When I make any wound I use one or two compressed antiseptic tablets. I think all the manufacturing pharmacists make them. I have used Seiler's antiseptic pastilles, made by Frazer Tablet Triturate Company, and am using now Parke, Davis & Co.'s compressed nasal tablets. They are practically the same and have been satisfactory.

Each "compressed nasal tablet" contains:

℞.—Sodium bicarbonate	5	grains.
Sodium borate	5	grains.
Sodium chlorid	5	grains.
Sodium benzoate	7.24	grains.
Sodium salicylate	7.24	grains.
Oil eucalyptus	7.48	grains.
Thymol	7.48	grains.
Menthol	7.96	grains.
Oil wintergreen	7.96	grains.

These tablets cost only three dollars and seventy cents per thousand. They dissolve readily, and can be prescribed two to one glass of water. It has been my usage for the first day after extracting to advise the patient to hold some of this solution in the mouth for a minute, every one or two hours, and afterward four or five times a day till the wounds are healed.

For spongy gums and many forms of inflammation of the mucous membrane the tablets are very affective.

J. Van Pelt Wicks, D.D.S., Brooklyn, N. Y.

FAILURES TO BE AVOIDED.

1. Neglect to remove calculus and to properly care for the gums. Many when they attempt to do this fail to do it thoroughly; fail to remove all the deposits beneath the gums. Frequently they overlook deposits and pockets on the proximate surfaces of the teeth.

2. Neglect to study the lines of occlusion before building up to restore the lost portion of a tooth, so that it is built too high or not high enough, or not in proper form.

3. Occluso-proximate fillings are subject to greater strain and require firmer anchorage where situated upon the mesial side of lower teeth, and distal side of upper teeth, than when on distal of the lower or mesial of the upper. This because of natural occlusion and backward movement of the lower on the upper in mastication.

4. Neglect to keep proximate fillings dry, with rubber-dam in place till well polished and closely examined.

5. The long-continued pressure of packing gold to make a large filling drives the blood somewhat from the peridental membrane, and the root of the tooth is driven more closely into its alveolar cell. The filling may be ground so as to just escape occluding force, or it may just touch an opposing cusp. Reaction setting in, the peridental blood supply is restored, perhaps increased—consequence, the tooth is elongated (apparently) the filling "strikes" and the patient may have a "sore" tooth, or the safety of the filling may be jeopardized.

6. Neglect to grind off fillings on the occlusal surfaces from time to time to correspond to the wearing away of the adjoining tooth substance.

7. Many fillings are closely adapted at the margins when finished, but as they are worn or ground down in course of time, they leak because they were not closely packed against the walls all the way up. *Dr. Townsend.*

TIN AND AMALGAM FILLING.—Some years ago I wrote an article on the use of amalgam, which was criticised rather severely; and by some I was called a "gold crank." Since that time, as before, I have been keeping a record of all my work; and to-day stand firmer than ever by my position. Though I may be a gold crank, I know that all cements will dissolve in the mouth under ordinary circumstances (in spite of the label on the bottle being "insoluble"); and I do not believe in crowning teeth when they can be properly filled. I never fill teeth with amalgam when I can get my patients to understand that gold, tin or gutta-percha possess better tooth-saving properties. In fact, I have never seen an amalgam that will save teeth under ordinary circumstances. By lining the cavity with tin foil, and in proximal cavities of bicuspids and molars, by cutting through from the grinding surface, forming a compound cavity, and filling at least half full with tin, and finishing with amalgam, I can get tolerably good results. The object in filling teeth is not to have the fillings "stay in," but to preserve the teeth for as long a period of usefulness as possible; and a tin filling covered with amalgam gives a combination of tooth preserving property and hardness of surface for grinding purposes that cannot be had in either used separately.

G. Chisholm, Birmingham, Ala.

AMERICAN DENTAL ASSOCIATION.

OLD POINT COMFORT, VA.

Thirty-fourth Annual Session August 7th, 8th, 9th and 10th, 1894.

Reported by Mrs. J. M. Walker.

President Dr. J. D. Patterson, Kansas City, in the Chair. Dr. H. C. Cheatham, of Hampton, Va., led in prayer.

After an address of welcome on the part of the Virginia State Dental Society by Dr. Campbell, and the transaction of some routine business, the subject of the coming celebration of the fiftieth anniversary of the discovery of anesthesia by Dr. Horace Wells, Hartford, Conn, was brought before the Association by Drs. Thomas and McManus. Drs. J. V. Thomas, Fillebrown, Taft, McManus, W. H. Morgan, W. C. Barrett, Harlan, McKellops and Weeks were appointed a committee to prepare suitable resolutions.

At the request of Dr. J. N. Crouse a committee of three (Drs. H. A. Smith, C. E. Esterley and Louis Jack) was appointed to act with a committee of two from the Southern Dental Association (Drs. R. R. Freeman and V. E. Turner) to examine the books, vouchers, notes, mortgages, etc., of the Dental Protective Association and report. The committee subsequently reported that they had found everything correct and satisfactory.

On motion of Dr. A. W. Harlan a telegram of greeting was sent to the American Dental Society of Europe, in session in Geneva, Switzerland.

On motion of Dr. H. A. Smith, Dr. Crouse made a statement as to the status of dental litigation by the Dental Protective Association.

He stated that the "low bridge" patent is the subject of present litigation. An immense mass of testimony has been taken in all parts of the country. The case will be argued in October, and then the result of their labors will be known. Dr. Crouse believes there is abundant testimony to defeat the patent in any court. In regard to the lawyer's fees, Dr. Crouse said that the Association has about $3 000 for available funds apart from $10,000 mortgage notes on real estate, which could not be realized on at present without great sacrifice, so that it may possibly be necessary to call for an assessment on the members. This will be made known later.

PRESIDENT'S ANNUAL ADDRESS.

After a touching tribute to the memory of those who have "answered the last roll-call" during the past two years, Dr. Patterson suggested various plans whereby the influence of the Association for good to the profession might be increased. He regretted the "undigested science" and "trivial

repetition" which burden the records of the Association, and deplored the lack of self-sacrifice which imposes all the burden of work on an enthusiastic few. The method of work "by sections" is historic, but it fails to accomplish the desired results because so few members of the sections assist in the work assigned. As long as the work is voluntary, each one waits for the other to do the work, and latent talent lies undiscovered. Each one should realize that it is his individual duty to do something, however little, in the section in which he is enrolled. In the proposed revision of the Constitution he offered two suggestions; one, the formation of a "Supervisory Committee of Work" with clearly defined duties, looking to more perfect scientific results; another being the reservation of the general sessions for strictly scientific work, leaving all routine business to special committees. He then gave a brief general review of the various forces in dental education; the work of the National Association of College Faculties and Examining Boards; dental journalism, dental legislation, etc.; and expressed the hope that some plan might be formulated tending to the unification of the dental laws in the different States. Dental legislation, as it now stands, he qualified as a travesty on justice and equity. He regretted the increasing numbers of anesthical practitioners, whom he styled the "Anarchists of our profession," against whom no line too strict can be drawn.

The President's address was referred to a committee consisting of Drs. Abbott, Crenshaw and Brophy, whose report at a later session gave rise to an interesting discussion of the topics presented.

The "Re-establishment of Clinics in Surgical and Prosthetic Dentistry in the American Dental Association," found equally warm advocates and opponents.

Dr. C. N. Peirce moved that the question be referred to the Executive Committee, with power to act.

On motion of Dr. Fillebrown, however, the matter was laid on the table.

The "Recommendations in Regard to Dental Legislation" were considered in the committee's report as unpracticable as long as the examining boards are appointed in so many different ways. This was finally referred to a committee of three on Unification of Dental Laws—Drs. B. Holly Smith, A. W. Harlan, and J. Y. Crawford, to confer with similar committees from other bodies, and report to the Association.

The subject of "Securing More Efficient Work in the Sections" was referred to the Committee on Revision of Constitution and By-Laws. A special session was given to the report of this committee, which, however, only asked for further time, till a report should be made by a committee of five, appointed to confer with the Southern Dental Association, looking toward a union of the Southern and the American Dental Associations to form one National Association. This committee consists of Drs. Fillebrown, B. Holly Smith, Louis Jack, J. Y. Crawford, and J. N. Crouse.

Dr. Thos. Weeks announced that a meeting would be held of

those interested in the teaching of dental technics for purposes of organization.

The meeting was held and the National School of Dental Technics organized with Dr. Cattell, Chicago, President; Dr. Walker, Minneapolis, Vice-President; Dr. J. F. Stephan, Cleveland, Secretary and Treasurer. The membership being confined to professors of operative and prosthetic dentistry and teachers of technics in the colleges belonging to the National Association of Faculties. Eleven colleges are represented in the charter membership, and fifteen more have filed applications. The principal object of this Association is the extension of the teaching of dental technics in the dental colleges of America.

Dr. John S. Marshall, Treasurer of the World's Columbian Dental Congress, made a detailed report to the Association of all the receipts and disbursements, showing a grand total of $14,309.79 received from the United States and foreign countries.

The committee (Drs. M. W. Foster and H. B. Noble) appointed at the request of the Treasurer to examine the accounts reported at a later session that they found the accounts and vouchers all correct.

The expenditures of the committee, as reported, do not include the expenses of the members of the Executive Committee for railroad fares and hotel bills incurred in the prosecution of their arduous duties, amounting to over $4,000, which has been cheerfully donated to the Congress. Notwithstanding this generous donation there is a small discrepancy between receipts and expenditures in favor of the committee, and with the publication of the Transactions still unpaid for. Dr. Marshall suggested various means by which the necessary amount, about $1,000, might be raised, as by the sale of some three hundred memorial medals still on hand, the sale of extra copies of the Transactions to those who are not entitled to them as members of the Congress, etc.

On motion of Dr. H. A. Smith the Association voted an appropriation of $500 toward the amount needed. Later, Dr. Marshall announced that he had raised $260 more, and was in hopes of completing the $1,000 before the close of the meeting, as he would feel much better about it if he had the funds in hand to pay for the Transactions when completed. He did not think it would be right to allow the Executive Committee to pay any part of the bill.

SECTION I.—PROSTHETIC DENTISTRY, CHEMISTRY AND METALLURGY.

The report from this Section embraced reports on methods of work and new appliances.

W. E. Sharp, Binghampton, N. Y., exhibited and explained the working of the Sharp furnace, a little furnace for general

laboratory purposes, using gas as a fuel and utilizing the maximum of heat, with the least expenditure of labor or fuel.

Dr. Sill inquired how long it would take to fuse "S. S. White's Close's body."

Mr. Sharp replied: You can biscuit, cool down, replace, and fuse enamel on in fifteen minutes. It is equal in every respect to a coke furnace, with a great saving of time and heat.

Dr. Geo. Evans described and illustrated his method of making hollow gold dummies for bridge-work. The band and cusps being completed, solder and flux is melted into a little ball, which is placed on a piece of platinum of 30 or 32 gage, the hollow crown is placed over this, and heat being applied from below, the solder is melted and flows all around on the inside of the crown. The edges of the platinum are then stoned down and the crown polished, making a hermetically sealed hollow dummy, with no solder on the outside.

Dr. Evans also illustrated and explained a new method of crowning front teeth. In a long-oval disk of platinum a small counter-sunk hole is struck near one end by means of a suitable die, making a concave spot, which fits into the orifice of the root-canal, which has been previously formed with an Ottolengui reamer. A little pure gold is fused in the counter-sink, filling it to the level of the disk. A screw-thread is cut on the post, which is screwed through this little mass of gold, which is again melted around the post, holding it very firmly. The disk and pin is now placed in position, and by a little tapping the outline of the abutment is marked on the disk. The projecting portions of the disk on the proximal and palatine sides are snipped and bent back, annealing as necessary to form a collar on three sides of the root, no gold appearing at the labial margin. The crown is backed and soldered to the cap, giving uniform continuity to all portions of the crown. The crown is cemented with oxiphosphate, but another new feature is introduced at this point in placing a film of gutta-percha on the pin before inserting it in the cement, thus facilitating its removal in case of accident. Heating the crown in the mouth with a suitable instrument (say the broken point of a root drier) softens the gutta-percha about the pin so that it is readily removed.

Dr. R. R. Freeman doubted if it would be possible to seal a hollow crown perfectly by this method, but Dr. Evans replied that he had tested it perfectly, and it was sealed hermetically.

Dr. Sill asked what was the object of cutting a screw-thread in the post and then filling it with gutta-percha before inserting it. He did not see the advantage of the screw-thread.

Dr. Evans replied that the screw-thread was simply to screw the post in the little mass of gold in the concave spot of the cap, but not to secure the post in the tooth. For that he relied on the cement entirely.

Dr. F. H. Gardiner saw nothing in this method but what he had learned sixteen years ago, and thought it not comparable to the Richmond crown. Instead of being a step in advance this was retrograding, it being an old crown described fifteen years ago.

Dr. Crouse thought Dr. Gardiner had evidently not followed closely the description given by Dr. Evans. He thought this the simplest and neatest thing he had ever seen. It is not simply a plate burnished to the end of the root, but it encases the root on all sides except in front, where it is not wanted to show. The Richmond crown is not a handsome thing in the mouth.

Dr. Brophy said that this leads us directly back to the day when we had clinics. However clearly described, we can not as well understand as when they are demonstrated. He hoped the time would come when clinics would be re-established. Every one would have been glad to have seen the methods of Dr. Evans demonstrated.

Dr. Noble explained the method of making and using the Daly gold lining for rubber plates, giving a smooth solid gold surface next to the mucous membrane of the mouth. The lining is made by depositing crystals of gold on a sheet of No. 20 gold foil till it reaches the thickness of No. 50 or No. 60. The lining thus has a polished smooth surface on one side and a roughened, crystalline surface on the other. In using it the usual methods are followed till the wax is removed. The cast is then given a coat of sandarac varnish and dried, after which a coat of damar varnish is applied to give a sticky surface on which to apply the gold lining. The lining is cut in small pieces and applied to the cast, smooth side down, with each little piece overlapping the other, so as to leave no uncovered spaces or cracks. When the surface is completely covered with the lining in small overlapping pieces the rubber is packed as usual, being careful to have it of uniform thickness. The piece is vulcanized and finished as usual. The brush wheel being used freely on the gold surface if necessary, as the gold cannot be removed by mechanical means, but will last as long as the plate itself.

Dr. St. George Elliott described a method recently introduced in England of swaging plates by means of steam pressure.

Dr. Carter described a method of swaging plates with shot; also the process of fusing platinum by means of the incandescent light current.

Dr. Bogue described a hydraulic press for swaging gold plates used in England, securing a much more accurate fit than can be done by blows of the hammer.

Dr. Butler apprehended that where such powerful mechanical forces were employed the gold would be liable to be extremely attenuated in places.

Dr. Bogue replied that he had not found it any more so than when swaged with blows of the hammer, though he had not calipered for any very fine test; that it was neither necessary nor advisable to use any extreme amount of force, as was done by an inexperienced workman who burst asunder a ring of malleable iron three-quarters of an inch thick.

Dr. V. H. Jackson, with the aid of a series of copyrighted diagrams, described and illustrated his "crib" appliances for regulating teeth and retaining in place teeth loosened as the result of pyorrhea alveolaris, etc. (The illustrations formed an essential part of the lecture, without which the descriptions could not be made clear.)

Dr. Rhein inquired if the metal used was left to the discretion of the operator, or if any special metal was preferable.

Dr. Jackson advises gold in all cases where it can be utilized. "Spring gold" he does not consider as good as German silver, but if there are sharp angles in the appliance required gold is preferable. For a permanent retaining piece for loose teeth use iridium gold. If there is no excessive acidity of the oral fluids, and the fixture is not to remain long in place, use German silver and soft solder. Piano wire is tougher than anything else, and is used when the strongest spring is required; this must be tinned if it is to be worn for some time. German silver answers nearly every purpose if kept cleaned at the points where solder is used.

Dr. Crawford asked Dr. Jackson what he thought of the propriety of removing very loose teeth, thoroughly cleaning them of all deposits, and then replacing them to be held in place by the appliances described.

Dr. Jackson: A tooth that has once been attacked by deposits is never a fit tooth for replanting. A replanted tooth is held in a mechanical manner by means of granular tissue filling interstices in tooth substance the same as they run into the meshes of a sponge graft. But in a tooth in which there have been deposits of calculus these spaces are filled up, and when the external deposits are scraped off a roughened surface is left, which nature will not tolerate; inflammation and absorption follow unless the foreign substance is perfectly smooth—smoother than man can make it.

Dr. W. H. Morgan rose to a point of order, the discussion here

invading the field of pathology, which would be discussed in connection with other papers. Continuing on the line of metallurgy, he asked Dr. Jackson what he meant by "spring-gold," as he used the term.

Dr. Jackson: Simply what is sold by the dealers as "spring-gold." I believe it is platinized gold.

Dr. Morgan: The best spring-gold is made by adding one-tenth part platinum to pure gold; that makes an excellent spring. Twenty-two or twenty-three karat gold, with two pennyweight platinum to the ounce, drawn through a plate, also makes an excellent spring. It anneals readily, but if heated too often, loses its spring.

Dr. Jackson: An important factor in our work is the discovery of a spring metal that shall have the spring of steel without corroding. I have a metallurgist experimenting on the precious metals to get a spring metal that shall retain its spring after heating many times. What he has got is not bright enough, but I think he will get it.

Dr. W. O. Kulp described his method of retaining loose teeth. He makes cap crowns covering entirely the lingual surface of the loose teeth and extending under the free margin of the gums, but cut away on the labial surface as near as possible to the gum line. A band is fitted across the lingual surface, to which the caps are soldered, making a continuous surface from the cutting edge to the gum margin. Such a piece as this has been worn with satisfaction for twenty years, the teeth at first having been so loose that it was difficult to hold them in while putting it on. He had utilized the same idea in a case of fracture in the center of the lower jaw, soldering a plate to bands on the teeth after adjusting the ends of the fracture. A surgeon had predicted that there would be no osseous union, but six months later pronounced it a perfect success.

Dr. J. N. Crouse described an automatic pump used to compress air in a cylinder connected by piping with stop-cocks on his laboratory table, which gave a continuous blast and all the pressure he wanted, whether for a continuous gum furnace or any other laboratory work. He is working to get them reduced to $15.00 before putting them on the market, for the members of the Dental Protective Association. They are now $25.00.

Dr. Kulp: Prof. Hunt has invented an air-pump, taking the idea from a beer-pump, which is attached to a water-pipe, and costs only four or five dollars, and is powerful enough for the continuous gum furnace.

[TO BE CONTINUED.]

DENTISTRY AND GENERAL MEDICINE.

George H. Chance, D.D.S., of Portland, Oregon.

However much American dentists may differ concerning the practice of dentistry and its relation to general medicine, medical men, with few exceptions, believe dentistry is a mechanical art only, and that dentists are mechanical craftmen, and as such are not entitled to professional recognition from medical men. It will, therefore, be the purpose of this paper to show, if possible, that whatever may have been the dentistry of the past, the dentistry of the present is both a science and an art, as well as a liberal profession.

Modern dentistry is, in the broadest sense, both a science and an art. As a science, it deals with a full and an accurate knowledge of the dental organs and their functions, as well as with a knowledge of the causes leading to their pathological conditions whereby disease is engendered, and function either impaired or destroyed.

As an art, its votaries are instructed in and made acquainted with the various methods and means for combating dental and oral disease, that health may return and, wherever possible, function restored; so that it is quite safe to say that dentistry is science applied to dental and oral surgery. And it is quite as safe to say that medicine, when stripped of its scientific adjuncts, major and minor surgery, is largely a system of guessing at probabilities in disease, with a fearful lack of harmony existing among the guessers, divided as they are into belligerent camps, some large and "regular," and some large and "irregular," besides other small camps of various construction, with guessing schools attached to each camp, teaching different theories, and each claiming to teach the only true Simon-pure method of guessing and of practice. And these, forsooth, are they who assume to write and publish their guessing criticisms on the dentist and his methods; one of these from the large and "regular" camp gravely guesses that dentists are not sufficiently sterilized to prevent infection from syphilitic patients when they apply to the dentist for treatment of the oral cavity.

Then there is the brother from the "irregular" camp of guessers, and he guesses that dentists ought not, under any circumstances, use amalgam for filling cavities in defective teeth, because he guesses that the potency of the dynamic force of his fifteenth dilution of medicinal dynamo will be destroyed by coming in contact with the wandering mercurial spooks, which he guesses may inadvertently escape from between the meshes of the amalgam plugs.

But surely we are not as ignorant as some of these guessers take us to be, and really do know more about some things than they give us credit for.

Dentistry has discovered the cause, and is daily successfully treating 90 per cent of all the cases of so-called " facial neuralgia," whose victims apply to the dentist for relief. It has also vastly improved on the methods formerly in vogue by the medical profession for the surgical treatment of tumors of the oral cavity, as well as fractures of the jaws, simple or compound. It has aided and abetted the aurist and oculist in their efforts to restore function. It was a dentist who first thought out and who first put to practical use that boon of boons, anesthesia, and who gave his thoughts and his experience to the medical profession and to the world without fee or reward. What has here been stated as standing to the credit of dentistry is but a tithe of what it has accomplished, and is destined to yet accomplish in the interest of suffering humanity, in spite of adverse medical criticism.

The " medicine man," whose office was in former ages merged with that of the priest and prophet, and who also was thought by many to be gifted with supernatural powers in the art of healing the sick, has from time immemorial exerted a seeming mysterious influence over the minds of the common people, sometimes for good, and sometimes for evil; and this seemingly strange influence exists in the minds of the laity to-day; hence, the physician's opinion, when he is called to the sick-room, is deferred to in all cases almost without question; and to a certain extent this is right, for such confidence enables the conscientious, competent physician to treat the patient according to the exigency of the case, free from the ignorant interference of anxious friends. Besides this, very few of the laity possess any genuine knowledge of the *mysteries of medicine*, so that there are obvious reasons for this sometimes " blind faith " in the chosen physician, no matter from what school he may come.

Such things show us how very differently the physician and the dentist are held in public estimation; the services of the former being sought mainly for his supposed skill in the mysteries of medicine, while the latter is employed not so much for his technical knowledge, which, of course, he must possess, as for the special labor he is expected to perform; so that to succeed in our calling it is not necessary that we should wear the badge of medical servitude, for dentistry is the product of a higher and more advanced form of civilization—a scientific, independent profession, developed by master minds of a more recent generation, and not a *medical legacy* left us from a former period, when the medicine man was

the only source to whom suffering humanity was taught to look for physical relief, and whose application was in vain when the malady was of dental origin.

Dentistry, like general medicine, is here to stay; both are needed, and both are without doubt intended as instruments in the hands of the properly educated for the relief of physical suffering; and so far as scientifically educated, limited human foresight can go, are also intended to be used for the *prevention of disease;* but such desired results can be reached in certain cases only in proportion as physician and dentist are willing to consult and co-operate with each other; and to do this intelligently and successfully each must possess that kind of an education which will not only fit him for practice in his own field, but must, to a considerable extent, overlap other branches of the healing art. While it may not take in all details, neither does such an education imply that a dentist shall practice general medicine, or the physician dental surgery.

This is precisely the kind of education the dental students acquire in the dental colleges of to-day; three full years of study and attendance on three full courses of lectures being required before the student can be graduated. It will be noticed that the time required to be graduated in dentistry is the same as that required for graduation in general medicine. It will therefore appear to the observant mind, that if it takes three years to graduate a student in dentistry, and no more than three years to graduate a student in general medicine, that there must be something more to learn in dentistry than the average physician, with his present limited knowledge of the dental organs, is prepared to admit. The medical man should, if only for his own reputation, be better informed on the subject of the teeth than is the average physician of to-day, the teaching of which has been sadly neglected in the medical colleges.

DENTAL JURISPRUDENCE FOR DENTISTS AND LAWYERS, by Dr. William F. Rehfuss. The Wilmington Dental Manufacturing Company, Philadelphia. Price, cloth, $2.50; sheep, $3.50.

Dr. Rehfuss was a ripe scholar and a prolific writer for a young man, but this work was the great work of his life, and by which he will be known prominently to the profession. His careful codification of all laws bearing on dental subjects, and cases under these laws, and his wise comments are invaluable.

His decease is regretted by a large circle of the profession, as well as by his many near friends.

CURRENT THOUGHTS.

STATE DENTAL BOARDS AND DENTAL DIPLOMAS.

All States that have dental laws must needs have State Dental Examining Boards. These are usually appointed by the State executive.

Their duties call for the enforcement of the dental laws of their respective States, and these laws have but a single, fundamental principle, and that is the preventing of the incompetent, unskilled, dishonest and disreputable persons from entering the practice of dentistry. The powers of these boards are twofold, viz., mandatory and ministerial. In the former case but one interpretation can be put on the course they are to pursue. In the latter, however, a different condition exists, and their acts may be discretionary. In most cases the law contemplates that they shall recognize a diploma issued by a legally recognized dental college, and that they shall issue a license on this without an examination. Here arises a source of trouble, as there have been cases where this has been refused, and a test case is now before the courts, to see whether a State Board can exercise this authority or not.

There is no real ground for a clash between these functionaries, as the one is simply supplemental to the other. Their objects are much the same, yet they differ widely in reaching the end sought. College faculties assume the rôle of teachers, and when they have fulfilled this office, granted their pupil a diploma, and sent him forth into the arena of actual practice, their work is done, and their responsibility ended. The bearer of their credentials has it for all time, and if obtained honorably it is nonrevocable. These credentials are based on the knowledge the holder possesses, together with a moral character, and a record of an honorable standing. While he may not lose the former, the two latter qualities are often sacrificed, and when they are, who shall say that it is not a wise step to debar him from practice? Who may do this, if not a State Dental Board? It may not be law, but it is equity. It may not be the rule, but it is certainly justice. It may not be enforced, but it certainly should be. Let it be understood, then, that State Boards are not antagonistic to dental colleges or dental diplomas. That they are not constituted to interfere with the one, or question the solidity of the other, save when the former does poor work, and the holder of the latter proves himself unworthy. In these cases let them put the stamp of their disapproval on one, or

both, and in the latter case, debar the holder from practice, by refusing him a license. If the standard of dentistry is to be raised, these bodies must not come in conflict, but must work in harmony. These thoughts have been called out by recent events that have occurred in a Western State, and by the action taken by the Dental Examining Board of that State. In justice to themselves and the people of their commonwealth, they were compelled to revoke the licenses of three graduates of a reputable dental college, for "grossly unprofessional and disreputable conduct," and then informed the National Association of Dental Faculties of their action.

Now let us see what will come of it. It is high time that an example was set in this direction. The West is not the dumping ground for every incompetent, dishonest, and disreputable practitioner who may choose to occupy this field. It is high time that these were shut out, and it remains the work of the State Boards alone to do it. The words of a recent graduate of a reputable college, viz.: "The dental chair of to-day must be one not only of physical comfort, as far as possible, but of moral safety as well," is the keynote to the whole situation. If dental college faculties and State Dental Boards will work in unison with these ends in view, it were better for both, and the profession as well.

By a Member of a State Board, in Dental Review.

MEDICAL MEN AND DENTISTRY.

Dr. Geo. W. Warren, Philadelphia.

As further evidence of the need of a higher standard of dental knowledge for medical practitioners, especially those who incidentally figure as teachers, we cite the following: A well-known surgeon, who is also an author and a professor, cautions his students to "be sure, before extracting a tooth, to cut the *ligamentum dentis*." He then relates that its discoverer "first detected it by means of a microscope, in the maxilla of a hog, and afterward demonstrated it in the human subject." Another interesting instance is given by a contributor to one of our journals. He was requested by a practicing physician, who was also an editor of a medical journal, to see a child who was "suffering from some trouble which was difficult to diagnose—a most extraordinary and distressing case. A portion of the superior maxillary bone was denuded; integument sloughing away," etc. On examination, there was found protruding, some distance above the gum margin, the denuded root of a decayed temporary tooth, such as we frequently see; this being the sole cause for the alarm. We frequently learn of physicians

allowing patients to suffer from alveolar abscess, putting them to bed with the information that they are suffering from "neuralgia." And quite recently a lady called on us with the request to have a small amalgam filling removed. It was the only alloy filling she had, and was in good condition. She had been sent by her physician, who claimed he could not cure a throat affection, from which she was suffering, as long as the filling was retained.

Our literature is replete with authentic reports of such cases, but an excellent illustration of the point in hand, one that has never been published, we take from the practice of Professor Peirce. A well-known neurologist had under his care a lad suffering from chorea. The case was presented to Dr. Peirce, who, on examination, found several persistent deciduous teeth, interfering with the normal eruption of the bicuspids, and these at his suggestion were removed, and within a few days the distressing symptoms disappeared. Under the care of the same was a girl subject to attacks of epilepsy, which were thought by the attending physician to be incurable, but on the removal of several deciduous teeth and two deceased first molars, the marked improvement was evidence conclusive that dental irritation was in this case also an important factor.

A well-known dental writer, the late Professor Richardson, has truly said that it is the reproach of curative medical science that patients are daily drugged for the relief of maladies which, being purely symptomatic of, or dependent on, dental diseases or irritation, are diagnosed and obstinately and perseveringly treated as idiopathic affections.

It is also a reproach of conservative medical science that countless numbers of teeth are, year after year, uselessly and mercilessly sacrificed through the direct agency, or complicity, of many medical practitioners; and a reproach of sanitary medical science that, while the greatest circumspection is displayed in guarding the many approaches to the citadel of health, one of the most exposed and vulnerable points, whose defense is essential to the general safety, should be left so entirely uncared for.

Of course, all medical practitioners are not thus perverse and stupid. We number among our clients several of the most active physicians, who are always anxious, through personal and professional intercourse, to secure any information of value. Many of us, too, are called in consultation by physicians who recognize the close relationship of dentistry and medicine. But these are the exception—they are the salt of the profession. It is the average medical practitioner (which is the majority) to whom we allude.

Independent.

FILLING CERVICAL CAVITIES.

The form of the cavity for retention of the filling, and ample extension of the cavity for the prevention of recurrence of decay, are the two main items in this class of cavities to secure duration of fillings. Other factors belong to the method, as contour and contact, triangular form of the interproximate space, secured usually by wedging or pressure; and the adaptation of the filling material to the restoration of form. Let us particularize a little. To prepare a cavity, always cut till you come to something good at the cervical margin, even if it should be necessary to cut all the enamel away at the cervix. Cut wide bucco-lingually, extending to the angles of the cusps and including them if thin or of poor texture.

The cusp angles are not of much importance in supporting the filling by this method of anchorage, and should be cut away till the strongest possible border can be secured, and restoration be made with the filling.

I have observed more failures (recurrences) at this point (cusp angles) than at any other point.

This is due largely, as I think, to the former practice of leaving these angles intact, with the view of giving some support to the filling, which I believe to be a fallacy. When but little dentine is left it is entirely inadequate to sustain the easily cleaved enamel under the wear and tear of mastication.

Anchorage gives better access to the cavity margins and all parts of the cavity likewise, than the older forms.

Outward bevel all round the cavity margin (not too great) and the cavity is ready for the filling.

We go to our meetings, and as we meet elsewhere, we talk and talk about how to prepare cavities and introduce fillings to make them last. Now what more is there to it than the putting of all the material you can into a good clean hole?

However simple the general principles may seem, experience teaches many that there is a wide difference as to who cleans the hole and puts in the material—whether the results are to be permanent or temporary, comfortable or painful, heaven-like or its antithesis—whether by the master or by the apprentice, the accomplished operator or the bungler.

The cervical margin! Place your filling material evenly and firmly on all margins and surfaces alike, maintain as uniform destiny as possible through the whole mass of the filling. Restore the lost form of the tooth caused by decay and excavation, finish,

collect fee, benediction—the cervical margin should now be able to take care of itself.

Let me observe that the signs of the times indicate that amalgam is to take rank as a permanent filling material, both for rich and poor, and as I think, on its merits in resisting decay, easier form-building in general, and particularly for its adaptability to the cervival margin. *Review.*

FILLING ROOTS.

In Dr. Frank Abbott's method of filling root canals he very seldom uses arsenic to devitalize a tooth pulp, and when he does it is only to relieve pain. For a tooth with the remains of a dead pulp, he opens into the pulp chamber so that he can have easy access to the canals. He then uses a one in ten thousand solution of the bichlorid of mercury (one grain to twenty ounces), syringing all the canals as thoroughly as possible. With a broach he probes into the canals so as to stir up the contents, and syringes again, repeating the process till the canals are clean, and the solution in coming out will not stain a white napkin. When he has thoroughly washed it he fills it with oxichlorid of zinc, to which he adds one drop of a one in two thousand bichlorid solution. This so mummifies or holds the substance which remains in the root as to give no trouble. He cleans out the canals and fills at the same sitting before dismissing the patient, painting over the gum with aconit and iodin, as a counterirritant.

Dr. Emil Schreier prepares a mixture of metallic sodium and potassium (about two parts sodium and one part potassium) of such a consistency that when a platina broach is plunged into it, through the paraffin coating, a film of the alloy will adhere and be carried on the broach, and the broach thus laden is passed into the moist canal. The metal decomposes the watery contents, liberating the hydrogen and forming the hydroides of the metals (caustic potash and caustic soda), which in the nascent state actively decompose the organic matter of the pulp, saponifying it, so that it is readily washed out with water. This leaves the canal very clean and sweet.

The substance destroys the germs present partly by the heat evolved and partly by the chemical products. Of course this method is only applied with the rubber-dam in position to protect adjacent tissues. *Review.*

PORCELAIN WORK.

J. H. Downie, D.D.S., Detroit, Mich.

The working of porcelain, in form in continuous gum plates, has been known to the profession for a great many years, though it has never come into general use. The working of it by the dentist, however, in the form of crowns, bridges and inlays, is of quite recent date. There is no class of work which now interests the profession more, and it is, without doubt, the coming work in dentistry. The manner in which it has been received, and the grand success which many have had with it, are good evidences. To be sure, some have failed to make a success of it, and have already thrown it aside; but their lack of knowledge of how, properly, to do the work, in no way condemns it. Because hundreds of dentists put in poor gold fillings is no reason why we should consider that a failure, which has served so grand and noble a purpose. The days when glaring gold is admired will soon cease to be, and the truly artistic operator will endeavor to imitate nature, and replace the lost organs and portions of them with a substance which matches so nearly in color that it can scarcely be detected.

Porcelain crown-work has been long practiced, and, when properly done, is one of the most satisfactory operations in dentistry, to both the patient and the operator. The porcelain crown has come from the old-fashioned pivot tooth, set with a wooden peg, down through various stages, each one being devised to overcome some difficulty with the former. This has led to the devising of the crown fused to a metallic cap, previously fitted to the root, and backed up with porcelain; this is the crown with which we have to deal in this paper. With it we get a perfect adaptation to the root by means of the platina cap, which prevents the splitting of the roots, prevents the joint from decay, and the washing out of the cement, and strengthens the attachment of the crown. The anterior portion of the band is covered with porcelain of the same color as the facing, so there is no metal showing, and no necessity for cutting off the root far above the gingival margin, and lacerating the gums. It is made with the teeth used for other work, so that no special tooth is required. The backing is fused on to the facing, making a perfect union, so it is not necessary to protect the point with metal to prevent the facing being broken off. The facing of a Richmond crown being always sure to break off, if not protected at the point with the metal backing, is no reason to suppose that a solid porcelain crown is not sufficiently strong. In the case of the metal-backed crown there is no union between the

backing and the facing, the porcelain front being held in position by the two small pins alone, which certainly makes a very weak attachment. By the porcelain process, the backing is fused on to the facing, forming a perfect union, which makes, in the finished case, a solid porcelain crown.

The Logan crown, which has served so good a purpose in the past, is sufficient evidence of the strength of a solid porcelain crown. It cannot be truthfully said of it, that the porcelain is not sufficiently strong, as we have very rarely seen one broken. The porcelain is not the weak point in the Logan crown; the difficulties with it are, getting the proper adaptation, liability of the post to break and the root to split. These may be, in a measure, overcome by banding, but in doing this we present to view a strip of gold across the base of the crown, which at once puts on it the artificial stamp.

The numerous ways in which the baking of the crown may be modified to fit the special case, and the means which we have at hand for its construction, are great advantages in the porcelain process. A crown may be made from almost any plain tooth, for either metal or rubber work, or from almost any tooth crown manufactured. The preferable tooth for this kind of work is the flat back tooth, such as is used for bridge work. The root should be ground off flush with the gums, the tissues being pressed away to allow of its being dressed down as far as possible without lacerating them. As the root enlarges at this point, leaving, when ground off, an overhanging edge, it is necessary to dress it off around its circumference in order to properly fit a cap to it. This can best be done with metallic disks and sharp scalers. The measurement of the root is taken with a small wire, using a small dentimeter to handle it. The wire, when removed, should be cut on the opposite side from the twist and straightened out. Laying this on a piece of platinum (30 gage), a mark is made to show the exact length. The band is cut a little longer than marked, which allows, when the ends are beveled, for the making of a lap joint.

The soldering, as in all cases of porcelain work, is done with pure gold. The band is fitted to the root, and a cap soldered over the top, the cap being perforated to correspond with the root-canal. The post may be made from almost any kind of platinum wire, but the most suitable material is square iridio-platinum. The end of the wire is flattened with a hammer, a little broader than the space between the pins of the tooth, and a notch filed in each side, so that it may be placed between the pins, which are then bent over it. This holds it sufficiently firm without soldering. The tooth or facing with post attached may now be set on in

position, and waxed in place on the cap, after which it is removed and the cap filled with an investment of equal parts of pulverized silex and plaster. This when set holds the cap in position to the post after the wax has been boiled out. The case is now ready for the adding of the porcelain. This material is mixed to a paste with water, and applied with a sable brush. It is built around the anterior portion of the band, and well out on the cap, but not over the pins of the tooth. After the first fusing these pins are filed or ground away, and in the case of a very close bite the facing may be ground away at the point of contact. More body is now added, to give the crown the desired contour, which, when fused, completes the case.

Porcelain bridge-work has much to commend it to the profession. It has no joints to absorb the secretions, and certainly merits the name of sanitary bridge-work. The unsightly gold may be dispensed with in all places except where it is necessary to make an attachment to a gold cap, and with this exception the natural appearance can be almost perfectly restored. No gold cusps or cutting edges are required to protect the bridge teeth, for precisely the same reason that they are not needed in the crown-work. The crown already described is used as a support for these bridges, the only difference in its construction being that when intended for bridge-work, after setting it up in wax, it is invested, and the cap and pins soldered. This allows the crown to be set in position without the porcelain backing, and an impression to be taken with modeling compound. A model is run, the bridge teeth are waxed in, and the teeth invested. After removing the wax, a bar of iridio-platinum is fitted from the posts of the supporting teeth across under the pins of the bridge teeth and soldered in position. The case may then be removed from the investment and the porcelain packing added and fused on. When it is necessary to use a gold cap for the support of a bridge, it is made of an alloy of gold and platina (22k. gold). This admits of being soldered with pure gold, is quite hard, so that its wearing qualities are excellent, and goes through the heat of the furnace without oxidation. The bar is soldered to the cap, the porcelain added and fused, and the case handled in every respect as when porcelain crowns are used for supports.

Porcelain inlaying is a grand thing in certain cases, and it is much to be regretted that the present existing circumstances do not warrant its being used more extensively. The difficulty with inlaying, is that we have not a suitable cement for setting. There is no doubt that sooner or later we will have a cement suitable for this purpose, which will make this the ideal filling. The best

method we know for making them is to burnish platinum foil over and into the cavity, thus forming a matrix into which the porcelain is built and fused. Body may be added and fused two or three times till the required contour is obtained. The platinum is then peeled off, and retaining points or grooves cut into the porcelain with the edges of a diamond disk, also undercuts made in the cavity, when the piece is ready for cementing in. The mistake is often made of taking too small a piece of foil with which to make the matrix. This should be large enough to hold easily in position with the thumb and finger of the left hand, while it is being burnished into the cavity with the right. This overlapping foil, by which the matrix is handled, is left on during the process of baking. There are two principal points wherein lie the secret of having a good fit with an inlay: First, in making the walls of the cavity beveled outward for a little way from the margin, so that when the platina is removed, the plug will fit tightly on the margin as it bevels out, and will set in the thickness of the platina removed, thus taking up the space occupied by it and making a perfect fit at the margin.

Second, in only partially filling the matrix with body, the first time it is baked, then replacing in the cavity and burnishing down the edge again, this corrects any springing of the matrix. For labial cavities, where there is no force to be exerted which will tend to loosen the filling, they may be used with Hill's Stopping, using a warm instrument handle to press them into place. This is, perhaps, more reliable as to lasting qualities than any cement which we have at the present day.

The Jacket crown, which is a platina cap with a porcelain facing, is in some cases very valuable. Its use is indicated for undeveloped teeth, usually called rice or peg teeth. These may be built out, and the normal appearance fully obtained. It is also of use for decayed teeth where the pulp has receded considerably and is in a healthy condition. It is of no use for decayed teeth of normal size, if the nerve has not receded, and they set in their proper position in the arch; because they must be ground so near to the pulp to get the facing on without its being too prominent, that the death of that organ is almost sure to result. There is no good reason why they should ever be used in any case where the pulp is not alive.

To construct this crown: Make a deep band or ferrule of platina to fit the tooth which has previously been ground, slightly tapering on its sides and lingual surface, and flat and receding considerably on the labial surface. The inner portion of the band, which stands up from the tooth, is clipped off, and a flat piece

soldered on to make the sloping lingual surface (supposing the crown to be an incisor or cuspid), and the anterior portion of the band ground very thin, except around the gum margin, this thin anterior portion is malleted down against the tooth, using a large foot plugger, and folding down the upper corners when necessary. A tooth is selected, either a flat back, or a plain tooth for rubber-work. It is ground away flat at the back, tapering down to as thin an edge as possible at the base. After grinding till it will set in the proper position, the cap is removed and the facing stuck on with a little porcelain body. The piece is then set on a tray, in which is a little ground silex to keep it from shifting around while in the furnace. It should be very carefully heated up that the facing may not be thrown off. When cool, more porcelain is added around the edges to securely attach the facing, and after fusing, the crown is ready to be cemented in place. All these operations in porcelain are made infinitely more practical by the use of the low fusing porcelain body, which enables us to back up a tooth without etching its face, to fuse on to a bridge which is soldered to a gold cap, and to match the colors almost perfectly.

Register.

PARAFFIN AND SUPERFICIAL DECAY.

No one will deny that superficial decay can be cut out so that it will never reoccur. I meet many cases, notwithstanding the close watch I keep on my patients. I have found by putting on the dam, making a partial separation, so no capilliary action can take place, if I dry them thoroughly with heat and then put chloroform on those cavities, so as to take out any surplus material there, I can saturate those cavities with paraffin, and they will not decay. Take any of the old pulps that are so porous, and decay will take place again. After you get them thoroughly dry, soak them with heat and paraffin, and there is no possibility of their decaying again. If you shape your teeth properly, this will soak in the teeth and prevent further decay. Nitrate of silver is used. It is very good, of course, but it blackens the teeth. In most cases, if you will let them go as long as I do with gutta-percha, you will find that your work will be successful.

When my patients go to Europe I give them a little piece of gutta-percha, and tell them if they need to go to an American dentist, they should give him that with my compliments, and tell him to put it in till they come back.

International.

OUR QUESTION BOX.

With Replies From The Best Dental Authorities.

[*Address all Questions for this Department to Dr. E. N. Francis, Uvalde, Texas.*]

Question 175. *When you extract a tooth, mouth and gums in a healthy condition, and in a week or so patient returns with cavity open (as when tooth was first extracted) with sloughing of gums, and cavity very offensive, what is the cause and treatment?*

Use phenol-sodique daily as a lotion. If the condition continues I should suspect necrosis of the alveola, and treat for that.

D. W. Barker, Brooklyn, N. Y.

I can not give cause, but condition suggests that treatment consists of cleansing socket thoroughly with peroxid of hydrogen and iodin to stimulate healthy granulation. *R. B. Avery, D.D.S., Auburn, N. Y.*

I know no reason for gums sloughing, unless some local anesthetic was used. I would wash cavity with peroxid of hydrogen thoroughly, then give patient antiseptic mouth wash and dismiss for three or four days.

[*R. C. Amrine, Rushville, Ill.*

There are several things which could cause the trouble. By infected instruments; by necrosis; by retention of pus; by fractured alveola; or by tearing the gums. *Treatment.*—Wash out the cavity with warm water containing a few grains of chlorid of sodium, following with H_2O_2. That not effecting a cure, explore for necrosed bone, which should be removed. Look also for fractured alveola walls. Not finding either fracture or necrosis, I would dry out cavity, cauterize the socket with crystals of carbolic acid, which I think will effect a cure. Instruct patient to use listerin as a mouth wash. If trouble is from fracture of alveola, simply keep the parts clean and nature will assist in its removal.] *Unsigned.*

Question 176. *Patient twenty-five years of age; perfect health, with beautiful set of upper and lower teeth. Right lower bicuspid the only decayed tooth, and upon examination pulp is found dead and canal free from nerve fibers or decayed substance. Canal was washed with H_2O_2, followed with heat and oil of cassia. I dried and filled root with gutta-percha; filled crown and completed filling in one sitting, as indications were favorable and patient resided out of town. Tooth abscessed, and cheek swelled in thirty-six hours after filling, to the size of a small hen's egg. What shall I do after lancing the tissue and washing out with permanganate of potash, followed with H_2O_2? Is it necessary to remove filling for treatment, or can it be hoped, with reasonable certainty, that with the washing out of abscess, through the lanced tissue, the trouble will cease?*

I do not think it possible to treat the tooth successfully without removing the filling. Syringe with peroxid of hydrogen, aristol, or some other

good disinfectant and loosely plug root with cotton saturated with oil of cassia, or fluid cosmoline, to see how it will work. A tooth once abscessed is always liable to recurrent trouble. *Dr. E. S. Allen.*

You cannot hope for favorable results unless the abscess cavity can be thoroughly cleansed every day, for a week or ten days. This is very difficult to do unless you have two openings. I think, under the conditions, I would extract the tooth to avoid the possibility of its opening at some future time through the outside of face and cause a scar. *R. B. Avery, D.D.S.*

There certainly was some dead nerve fibre in root canal. Under the most favorable circumstances I never fill the root canal of any dead tooth at first sitting. The canal should have been opened, and no broach allowed in nerve chamber till root canal was flooded with oil of cassia and sealed up for one or four days. Then remove all foreign substance and fill canal, and in three or four days finish the operation. I think there is a chance of future trouble, but will do no harm to give it a trial. *R. C. Amrine.*

I am unable to understand how any tooth in this condition can be said to be in a state favorable for immediate root filling. If I wished to produce the result that ensued, I should follow the plan of treatment indicated in the question. I think the patient has a good case for a suit against the dentist for malpractice. Whether it will be necessary to undo the work and treat through the canal, can best be decided by trying. It can do no harm to try treatment through the fistula by syringing with aromatic sulphuric acid.
D. W. Barker.

I think the treatment in this case would cause the trouble mentioned, nine times out of ten. The treatment was O K, but it stopped short of an essential, namely, the use of counter irritants in the event of pain following the operation. If the gums opposite the apex of root had been painted with aconit and iodin, and the patient given several of Darby's capsicum plasters to apply in case of pain, the trouble would have been minimized or totally averted. As it rests now, simply disinfect the abscess cavity, which, not effecting a cure, enlarge the bone opening through which the pus escapes, with a large round bur (*a new one*), cauterize the tract and your trouble will end. The tooth and root, if filled correctly, must not be opened. *Unsigned.*

Question 177. *A lower molar, on both sides, with several small fillings in crowns. Just above the gum margin the teeth are very soft, and I have filled these soft places once, but after six months patient returns for other and larger fillings. The crowns are hard. The patient is a lady twenty years of age. Is it a case of soft teeth without remedy, or can I do something for them?*

Cauterize the cavities with nitrat of silver and fill with gutta-percha.
D. W. Barker.

It is a case of soft enamel, and the only thing you can do is to refill, but it is doubtful if you can save the teeth many years.
R. B. Avery, D.D.S.

I realize the best results by using rubber-dam, making cavities as large as convenient, removing all white enamel, lining cavities with a varnish of

rosin and chloroform, and filling with gutta-percha. Use it in all simple cavities. *Unsigned.*

Fill buccal cavities with gutta-percha, and I think the teeth will harden. Modeling compound, that has been used for some time, is also good for cavities where they are not called on for mastication. Correct all acidity, and have patient use lime water as a wash. *Dr. E. S. Allen.*

I would keep crown long as possible by filling with copper amalgam, and when too far gone for that, I would crown. *R. C. Amrine.*

Utilizing Amalgam Waste. Suggested by Question No. 166, October ITEMS.

So far as I know, the only really economical method of utilizing amalgam waste, practicable for the average dentist, is to reduce it to dental alloy by remelting, and expelling in the process, most of the mercury, casting into an ingot and reducing it again to shavings or filings.

Prof. George T. Barker suggested it to me many years ago, and from frequent favorable notices of the process in the dental journals, from time to time, I presume it has proved to others as it has to me, generally satisfactory. If the waste is all of the same make, or formula, my experience invariably has been, that the product is a little better than the original. If a general mixture of all kinds, I would not advise its use in the mouth, till it has been well tested, out of the mouth, especially for hardness and shrinkage. If there is the least doubt of its being good, it had better be thrown away.

The method is this:—Place the waste in a crucible much too large, apply sufficient heat to merely fuse the mass. As the mercury is apt to be expelled somewhat explosively, the crucible should be covered with a slab of something non-metallic, that will resist a red heat and prevent the contents from being thrown out.

It is due to some derangement of sensorial nerves.

I should not consider it serious. The general health of the young man should be looked after, and surface of effected part be occasionally rubbed with palm of hand to increase flow of blood to effected nerve.

J. A. Collier.

The trouble, evidently, is partial paralysis of the fifth nerve, caused by the portion supplying the tooth being caught on the alveola process during extraction and not becoming disengaged.

The treatment would be to take a sharp instrument and cut the process in the bottom of tooth socket so as to release the nerve.

Henry Pirtle, D.D.S.

The cause of black joints appearing when repairing a set of gum section teeth "even for a cracked plate" I think is this:

There is seldom such a plate made in which the rubber does not shrink from the blocks a little and sometimes a good deal. Now, if the plate is worn, this space between the blocks and the rubber becomes filled with secretions of the mouth and particles of soft food, even though the space be very thin—as any one knows who has removed such blocks. The effect of the heat necessary to vulcanize is to carbonize this collection and of course it becomes black and exudes between the blocks in joints that appeared to be perfect. *W. C. Bunker, Oregon, Ill.*

PRACTICAL POINTS.

By Mrs. J. M. Walker.

Treatment of Pulpless Deciduous Teeth.—Carefully avoiding ingress of buccal fluids, remove the dead pulp; wash the canal with bichlorid of mercury, 1–1000 solution (dilute with rose-water at time of using; does away with "bug-poison" taste); wash out with absolute alcohol; close up mouths of root-canals with gutta-percha, warmed and touched with "resin and ether, to make it stick," and fill cavity with gutta-percha. *Geo. S. Allan.*

Bleaching Teeth.—Saturate the dentine with strong sodium peroxid, followed by treatment with dilute hydrochloric acid, to neutralize the alkali. Wash with hot water. *E. C. Kirk.*

To Prevent Cracking of Porcelain Teeth in Soldering.—Use perpendicular-pin teeth; split the pins instead of riveting; apply borax and solder before heating up. Heat up slowly and gradually, throwing the heat on the plate first. The backings will easily heat up from their exposed positions. *L. P. Haskell.*

Paraffin Under Gold Fillings.—I never put in a gold filling till after I put the dam on and soak in paraffin till there is not a single place where it will go in. It is impervious, and hermetically seals every part of the cavity. *W. G. A. Bonwill.*

Filling Roots of Deciduous Teeth.—Oxid of zinc and aristol, equal parts, with enough oil of cassia and vaseline to make a soft putty-like paste. Work into the canals with a hot instrument or nerve broach, wrapped with a wisp of cotton.

Chas. Keyes.

Disinfection of Instruments.—Sterilize coarse building sand by roasting. Fill a suitable vessel with this, and pour in a sublimate solution 4 per cent, or lysol 50 per cent, till the sand is thoroughly soaked. Keep covered with a sterilized piece of pasteboard. Pass all instruments through this two or three times. Offers simplicity, rapidity, absolute sterility, no injury to instruments. *Jos. Askovy.*

Relief of Pain from Suddenly Exposed Pulp.—Dry the surface of the pulp, and paint with collodion. *A. W. Harlan.*

Disinfection of Instruments.—A ten per cent solution of boro-glycerin in water will sterilize forceps, broaches and cutting instruments, and leave them without unpleasant odor.

A. W. Harlan.

Heat as a Test for Pulpless Teeth—A Caution.—Heat, applied to a pulpless tooth may cause the mephitic gases in the pulp-chamber and canals to expand, causing pressure on the tissues in the apical space and consequent pain, which may be mistaken for the response of a living tooth. *A. J. Oakey.*

Pulp Devitalization.—Cocain and arsenic equal parts, rubbed up with sufficient carbolic acid crystals to make a thick paste. Expose and bleed the pulp before applying the paste, getting direct contact, and seal in without pressure. *C. B. Rohland.*

Combination Filling, Amalgam and Gold.—To put gold in contact with amalgam, use an amalgam having seven per cent of gold in it. The filling will not discolor, and it will preserve the tooth. *W. G. A. Bonwill.*

Treatment of "Blind Abscess."—Free the canals from all septic matter and pump in campho-phenique with ten per cent aristol. Place in a loose dressing of cotton saturated with aristol. Repeat till no more pus is found in the canal. *Chas. Keyes.*

Filling Cavities in Deciduous Teeth.—Dry the cavity and remove as much softened dentine as the little patient will permit. Pack up crystals of nitrat of silver on softened gutta-percha and pack into the cavity. When this temporary filling has worn away, the dentine will be found hardened and not sensitive. A permanent filling can then be inserted. *A. M. Holmes.*

Hemorrhage After Tooth Extraction.—Hot water, injected drop by drop into the socket, will often arrest obstinate hemorrhage. Water so hot that it causes pain to insert the finger in it, will be tolerated in this way. *Julius Schiff, Jr.*

Protection of Arsenical Applications.—Cover with cotton saturated with chloro-percha. The chloroform acts as an obtundent, obviating the pain following the use of cotton and sandarac varnish; the gutta-percha is impervious to moisture and acts as a temporary filling. *D. D. Atkinson.*

To Prevent Leading in Swaging Aluminum.—Place thin tissue paper on each side of the aluminum. This oviates the necessity of oiling the metal which blackens it. Bleach in a pickle of chemically pure sulfuric acid. *T. M. Allen.*

Mouthwash.—In the treatment of pyorrhea, use the following as a mouthwash and lotion:

℞.—Lysol ..... fl. ℥ij.
Tinct. capsicum ..... gtt. xv.
Tinct. iodin ..... fl. ℥j.

F. T. Van Woert.

Tube-Teeth for Bicuspid Crowns.—Band and cap the root. Use an "A" crown-metal post, or drill out the platina tube and use a "B" post. Cement on with sulfur and dovetail a gold filling round the end of the pin. If the length of the crown will admit of shortening the pin sufficiently, a porcelain inlay over the end of the pin is very neat in appearance. *H. W. Gillett.*

Antiseptic Root-canal Filling.—There will be no shrinkage, and perfect closure of the foramen is insured, by filling root-canals with gutta-percha dissolved in the Australian oil of eucalyptus. The ordinary oil will not hold the gutta-percha in solution.

J. L. Asay.

Cotton and Sandarac.—Cotton and sandarac is an abomination, and should have no place in a well-regulated office.

G. V. Black.

EDITOR ITEMS:—Do you not think it would be more kind to the writer if, when you publish such a garbled and meaningless clipping as you credit to me, on page 622, current number, you were to omit his name? I think so.

C. Edmund Kells, Jr., New Orleans.

The following is the item complained of:

Cement Under Metal Fillings.—The less metal there is inserted in a tooth the better will be the result. Practically replace all the dentine with cement, following its original outlines and enamel with metal. The oxichlorid of zinc produces a beneficial effect on tooth-structure not to be observed as following on the use of oxiphosphate. The oxichlorid is, therefore, always used in this lining process, using gold or amalgam as a reserve only in all deep cavities. *C. Edmund Kells, Jr.*

REPLY OF MRS. WALKER.

The department "Practical Points" being designed for the benefit of those who—whether "by press of more important matters," or from sheer inability, it matters not—are willing, instead of "theorizing," to "accept the result obtained from" the "practical experience" and "personal observation" of competent observers;* arguments and theories, science and philosophy are carefully eliminated in the endeavor to present the practical point intended in the fewest words possible. The items are neither "clippings," "quotations," nor "selections," but *gleanings* reproduced as briefly as possible.

* See *Cosmos*, April, 1894, page 295.

I regret that in my endeavor to accomplish this, the third point on page 622, October issue, appears "garbled and meaningless" to the eminent authority cited.

In justice to him, and also to myself, I beg you to publish the following quotations from the article from which the item "Cement Under Metal Fillings" was gleaned, the *italicized* portions being those used in the item referred to:

* * * "I can but believe that *the less metal there is inserted in a tooth, the better will be the result* obtained, and so it is my invariable custom to line all deep cavities with cement [on which the gold or amalgam is placed as a veneer] (see last line below). * * * * * *

"The rule followed is to *practically replace* about *all the dentine with cement following its original outlines and* to *enamel* it *with metal.* * * * * * *

* * * "That I fully believe that *oxichlorid of zinc produces a beneficial effect on tooth structure not to be observed as following on the use of* the *oxiphosphate.* This being the case, it hardly becomes necessary to state that *the oxichlorid is* the one material *always used for this lining process* [using gold or amalgam as a veneer* only, in all deep cavities] (see brackets above)."

Comparison of the above with the last half of page 294 and page 295, *Cosmos*, April, 1894, will show that in the effort to confine my item to *a single point*, that of the value of using "cement under metal fillings," I have omitted all detail as to the removal of more or less softened dentine, the sensitiveness of dentine, the detail of filling the root canals in pulpless teeth, of avoiding overhanging enamel walls, etc., etc., all of which are outside of the one point I desired to emphasize under the caption of the item in question. With this explanation, I beg to tender my apology to Dr. Kells for the liberty taken with his text.

Mrs. J. M. Walker, Compiler of Practical Points.

We have since received from Dr. Kells what he places on record as saying:

CEMENT UNDER METAL FILLINGS.—The less metal there is inserted in a tooth the more satisfactory will be the result. Practically replace all the lost dentine with cement, following its original outline, and "enamel" with metal.

The oxichlorid of zinc produces a beneficial effect on tooth structure not to be observed as following the use of oxiphosphate. The oxichlorid is, therefore, always used in this lining process, gold or amalgam, as the case indicates, being packed over.

* Not *reserve* as misprinted on page 622.

ITEMS.

I protest against this endless inundation with local anesthetic circulars. Life is too short, now, and I'm too busy to open them. Then, besides, every one has his own, which is the best of all. "It makes me tired." *J. W. Greene.*

* * *

Decay never occurs on any surface which may be and is kept clean. The fissures and pits, which cannot always be kept clean by the patient, should be filled on the first indications of decay. Here is preventive dentistry in a nutshell.

Garrett Newkirk.

* * *

A pledget of cotton dipped in a saturated solution of camphor and chloroform, placed for a few moments in the sockets of an extracted tooth, will almost instantly relieve the after-pain of extracting. To be removed as soon as the pain ceases.

D. W. Barker.

* * *

During Dr. Bonwill's recent visit in Chicago a few of his friends gave him an informal dinner at the Victoria Hotel. A very pleasant evening was spent. The following gentlemen were present: Drs. Harlan, Ottofy, Seymour, Wikoff, Case, Gardiner, Taggart, Fernandez, Brophy, Crouse, Davis, Royce, and Menges.

Review.

* * *

SULFURIC ACID FOR ROOT CANALS.—The tooth in which it is to be used should be exposed through the rubber-dam and coated with hot wax as a protection against the action of the acid, and a thorough application of an alkaline solution employed immediately thereafter. *J. R. Bell.*

* * *

We are very likely to make the holes in the dam so near together that when we have placed it in position the strip of rubber between any two teeth is but a mere string, not wide enough, as it should be to cover smoothly the interproximate gum. Inevitably, therefore, the gum is caught in one hole or the other and held tightly between the elastic string and the tooth. The circulation in the part is sadly impaired, and there is little doubt that it is sometimes entirely cut off, so that the tissue dies and may never be restored. *Garrett Newkirk.*

PYROZONE.—Allow me to add a word of caution regarding the 25 per cent pyrozone solution; it cauterizes, and therefore should be employed with care and used in a glass atomizer.

Liquid albolin is an antidote for pyrozone "burn." This remedy is all we could wish in pyorrhea. *J. R. Bell.*

* * *

COFFEE KILLS GERMS.—Coffee has been found by a German investigator to possess marked germicial properties. Pure coffee, of the ordinary strength in which it is utilized as a beverage, killed cholera bacilli in three hours, and typhus bacilli in twenty-four hours. The anti-bacterial substances seem to be developed in the coffee bean by the roasting process. *Literary Digest.*

* * *

In using gutta-percha I dry the cavity as perfectly as possible. I frequently use a solvent in finishing—simply a very small pledget of fibrous paper dipped in chloroform, and finally completing with a burnisher. In hidden situations I use the pink. This sometimes lasts fifteen to twenty-five years. I have known it to last on the grinding surface for ten years. When it is worn cut the surface with a bur and place on more. Decay under it is less than under metallic fillings. *Dr. Hitchcock.*

* * *

Use a magnifying glass to discover possible defects in the preparation of cavities and the finishing of fillings, also at times adaptation of gold to the walls or margins in the progress of fillings. It is impossible for the unassisted eye of any person to recognize the faulty conditions which may exist, and whoever accustoms himself to the use of a glass will learn to appreciate its value.

Garrett Newkirk.

* * *

MAGNESIUM HYDRATE.—For a local preparation in erosion, decalcification of enamel at the cervical border, or where the secretions are acid, as occasionally of gestation or lactation, is useful, bridging over, as it were, a period till physiological changes take place. Cases of young misses and men are numerous where an antacid is indicated. Its taste being pleasant without danger of injurious effects should place it on the front shelf as a valuable remedy to prescribe. It follows lime water, bicarbonate of soda and precipitated chalk. A teaspoonful taken into the mouth at bed-time, and rinsed around till it comes in contact with the teeth, forms an antacid coating, which adheres sufficiently to protect them for several hours. In extreme cases I prescribe its use three times daily, after meals. It is known as Phillip's Milk of Magnesia.

J. R. Bell.

PREVENTING IRREGULARITIES IN THE MOUTHS OF CHILDREN.—There is too much of "trusting to nature" where nature, like John Hay's character, "never aint had no show." We neglect to take "the stitch in time," and afterward we or somebody else, and the patient, have to undergo the painful "nine." Waiting is occasionally the thing to do, but the doctrine of non-interference is too often the excuse of laziness or neglect. If we do not wish to do the thing ourselves, or do not know just how, we should call in counsel or turn the case over to some one who is willing and capable. *Garrett Newkirk.*

* * *

I use copper points, made from wire, such as are used for electric bells, thus: Fill the apex of root with chloro-percha. Moisten small gutta-percha point in chloroform and press down. Heat the copper point and drive home. If the proper length is first taken and the larger end flattened slightly you have a support for your alloy, which will adhere perfectly to the copper, that cannot be excelled. I have used these points for over three years, and am more in love with them each time they are employed. Employing the gutta-percha point first prevents any discoloration of tooth. *C. D. Hand.*

* * *

In our unsuccess, what we are accustomed to rate as the force of unfavorable circumstances is too often merely the doubt at work in our own minds. It is the undermining process within rather than the pressure from without that demolishes and works the tragic destiny for the attempted. "He who doubts is damned," is a saying as old as experience. The destructive force of doubt is as demonstrable a fact as that of the whirlwind. Fear and doubt are the arch enemies of fulfillment. It is the single mind that reaches the goal of its effort. *Review.*

* * *

STERILIZED MILK AS A PREVENTIVE.—About Behring and his diptheria serum you all know, of course, by this time, but it may be new that Ehrlich and Wassermann, two other pupils of Dr. Koch, have carried this same line of experiments into another channel. Their experiences have just been related in a medical journal, and physicians claim that these prove that milk, too, after being sterilized, may be employed, just as blood serum has been by Behring, as a preventive against infectious diseases. This milk, of course, is swallowed, not injected, and is not to be regarded as a cure, but as a prophylactic. Still, this discovery greatly widens the field of observation and experiment. *Evening Post.*

COCAIN UNDER PRESSURE.—Knowing the chances of doing harm to the patient when the hypodermic needle is used, even with a two per cent solution, I have not been willing to take the chances of employing it in that way, but have confined myself to applying it locally under pressure with suitable compress, always using a ten per cent emulsion, and in that way have had the most flattering success. The pressure seems to empty the tissues of the blood, and in that condition the gums are more susceptible to the action of cocain. *G. M. Merritt, Jersey City.*

* * *

In the October ITEMS Dr. L. P. Haskell speaks of the explosion of pyrozone in opening. I have had several tubes explode, and finally became disgusted and asked the druggist to open them for me. The first tube (twenty-five per cent) he packed in ice and left for an hour; then placed the tube inside two test tubes of different sizes and tried to open with a file. The result was an explosion of all the tubes. After trying three different times he gave it up. As I can not get along without pyrozone I concluded to try once more. I held the tube under running water a few minutes, then wrapped in a towel and ground the end off on a smooth corundum wheel on the lathe, and to my surprise it did not explode. I have always used this method since, thereby saving several dollars and a great deal of "wear and tear" on my nervous system.
F. L. Browne.

* * *

TEACHER AND TAUGHT.—Some men of great learning cannot teach; the faculty of imparting knowledge is distinct from the faculty of acquiring knowledge. To teach is not simply to tell, but to make the statement of fact so interesting and so clear that it assumes a living importance, and is eagerly sought and intelligently retained by the hearer as a part of himself. A teacher must draw bold, clear outlines, omitting details and repeating essentials till his pupils have a mental framework on which they themselves may erect more elaborate structures at a future time. He who has not the power to select the essentials and lead the scholar to reason and observe is destitute of the teaching instinct; his lectures become mere recitations, wearisome to himself and to his involuntary hearers. The true teacher furnishes his pupil with compass and chart; no more. The latter must select his route and reach his harbor by the exercise of those intellectual powers which have been given him. It is experience and not memory that has been called the mother of ideas. *John B. Roberts, A.M., M.D.*

EDITORIAL.

THE NEW YEAR.

What an inspiration!

Let the crabbed, crotchety, ossified old men—and the young men who have spent in riotous living the strength, and the joy, and the wonderful rebound of their manhood—call it childish to shout the New Year in; but if this is childish, give me back my childhood. Ah, I like to dance, and sing, and play on a bright New Year's day. It is beginning again to live.

The old year has had cares, and labor, and trouble enough. And to some of us, grief and bereavments. (Ah, let me drop a tear.)

Old church bell toll thy requium;
Sad, lone heart bear thy sighs and tears;
Cold, damp clod, take my heavy load,—
Deep down on earth's dark bosom, *rest.*

But hark! The angel song shouts back,
"She's here! Weep not. Change grief for joy!"
Ring out the pealing bells. I live!
And with me lives a new born year.

I love this New Year. It comes so fresh from heaven I can smell its heavenly fragrance. It is still sparkling with heavenly glow. Such a shower of celestial brightness came with it, I peep through and see what this gift should be to me. As it brings me nearer heaven it shall make me more heavenly.

"But these New Year's resolutions; would you have us make them? How seldom they are kept."

Yes, make them, and make them strong and definite. They express the ideal of what you ought to be, and help you up to their standard.

Why, my man, you are no better than our Christian church, and they resolve, and their resolves are better than their practices. In the time of American slavery nearly all the American churches voted everywhere, but at the polls, that "Slavery is the sum of all villainy," and yet took to their bosom ministers and laymen who practiced it. But the time came when resolutions were forged

into a chisel so strong it severed the poor slave's chain. The churches are now voting everywhere, but at the poles, that "The saloon cannot be licensed without sin." These resolutions are too much of the head. Soon they will become so hot by the fire of the conscience that even at the polls the churches "will vote as they pray." Then the saloon must go.

So with us in our New Year's resolutions. They must represent the best there is in us, and their force will grow on us, and soon—perhaps very soon—we shall represent them in our lives. Thus let us grow.

THE FOUR PERIODS OF LIFE.

There are four epochs in a man's life: when he is born, when he dies, and, between these, when he enters independent business, and when he marries.

His birth is not the mere beginning of existence. What life is in the character of its being and surroundings, gives importance to his whole career. To be born right is half of life's whole battle. Happy is his life who has in it the best, and not the worst, of what has preceded him, and whose heritage here is the harmony of purity, and the advantages of intelligence, culture and finances; for even a giant's birth may be in the midst of so much confusion, vice and debauchery, squallor, grossness, and ignorance, and such penury and want that the faculties are blunted and dwarft.

But a young man is not half born till he wakes up to the inspiration of independent living. While he is tied to his mother's apron strings he may be a good boy, an obedient child, and an intelligent student, and his discipline and limitation of sphere are of great importance, but he cannot be a man till he has taken on manhood, and has taken into his own hands the mighty destiny of his own life, and sails out on life's sea in a ship of his own making. This is the second great epoch of his life—"for better or for worse." But whether for better or for worse, only he can be captain, though he wreck his ship.

And he will be likely to wreck his vessel if he takes no first mate aboard to help him, and has no crew. This brings him to the

third great period of life—he must have "a helpmeet for him." It is not only that he has a life companion, it is the wisdom of the choice that gives character to this serious, weighty, all important event—"for better or for worse." A woman many get along without a man, and take on that independent and aggresive character, which may be the making of her—though old maids, too, are often spoiled in the making—but especially a man amounts to little, if indeed he does not make a fool of himself, without a wife; yet many a man is ruined by having one. Happily, this is much as he wills it. By making our choice blindfolded, or, after choosing, spoiling the best choice by dominating selfishness, we may deserve disaster. But making our choice wisely, and afterward ruling in mutual love and loving concessions, we may live in heaven, and have all we do heavenly.

To make life a success we must not only be born right, but die right. Say what you will of death being "a leap in the dark," we must all take the leap, and as our life is, so shall be the leap—"for better or for worse." We can better our birth; we can better our business; we can better our home; can we not better our leap of death?

Where are we? In our formative period, working on our ship? Let us see that our craft is well made. Have we set our sail? Let us see that we have a good chart, a true compass, and choose a right direction. But stop, let us not forget to take on board our mate, then when down into the cabin from weariness to rest, or from confusion and tempest to consultation and sociality, we shall find a loving retreat—the comforts of home, sweet, sweet home. Or are we getting tired of our voyage, and long for the other shore? Let us see that our sails are not tangled; that our ship is not stranded; that our landing is not a failure.

There is much in birth; there is more in energy. There is much in social advantages; there is more in overcoming social disadvantages. There is much in the power of money; there is more in the necessities growing out of the need of money.

Show me a young man of energy that puts shoulder to the

obstacles of birth and social disadvantages and poverty, and removes them, and I will show you a young man that will become a giant, and who will walk the earth a proud commander of its resources.

There must be energy, indefatigable push, unceasing aggression, to win success. He that is willing to pay this price will cut his way through the wilderness, be it ever so dense. He will build himself a highway, be the obstacles ever so formidable. He will walk forth into the broad acres of his possessions the lord of his own creation, the monarch of his own destiny, the possessor of power, and worth, and happiness that no warrior can conquer, no rival can undermine, and no thief can steal.

LAUGHTER AS A CURE.

We all know the power of the mind and the spirits over our bodily ailments. When a physician we always took plenty of sunshine into the sick room. We found it the best of antidotes. As a dentist, it has been equally efficient with suffering patients.

It is astonishing this admirable cure is not more frequently mentioned in our works on therapeutics and materia medica. With all our specialists, why has not some one made this a specialty? Why not have institutions of laughter as well as of water and of gold cure?—or have it sold as a patent medicine? At least, it should be packed in every doctor's saddle bags. True, it is not taken in pills and powders, and it does not pucker the tongue as an evidence of potency, nor make the stomach squirm to vomiting, nor does it stick up the skin and itch and prickle and draw as plasters do; you cannot find it at the druggists, though a monopoly of it by a syndicate of druggists would make them all rich as Crocus, yet it is a factor of genuine importance to every successful physician and dentist. Even every business man would do well to have a sparkling draught of it ready for his customers at all times. Even fathers and mothers would find it a clever mixture for the blues, and for scolding, and it would sweeten children's tempers. And what a jolly company it makes of us everywhere.

It is a passport to the best society, and worth gold to every character.

It is one of the finest medicine for dyspepsia I ever took. I ought to known, for I was a dyspeptic for twenty years, and was cured by it. Its effects are still on me, for I have laughed ever since. Like the gold cure, it not only cures, but it keeps us cured; and, almost as pleasant, it sets in motion a regular gingle of gold coins, clinking and singing, laughing and tickling as they merrily drop into the pocket. For, give this gold cure to your patients, and they will be sure to give you in return a gold cure for all your needs. Patients like to be tickled. They will laugh over it in spite of themselves, and this laughter will cure them, and they will pay you more for it than for pills and potions.

I was once called to see a bedridden patient, who was determined to die because her husband had died, and because she had just a dozen incurable ailments. Oh, it was a wonder she had not died long ago. Physicians had long since given her up as only a proper subjecs for the grave.

I found her comfortably in bed, with a large family of devils about her. Sure; for she could see them, and hear them, and feel them, and they were all just quarreling to see which should take her on their pitchforks to their infernal regions.

After sympathizing with her in her doleful misery, and assuring I, too, saw them at her foot-board, I suddenly called out to her in the utmost ecstasy and surprise: "Mrs. Clark, Mrs. Clark, do look over the head-board! See these angels? Do see them laughing, and dancing, and playing to attract your attention!" And quickly the devils ran away. I laughed and laughed, and she laughed, too. "Keep their company," said I, "and let the beautiful sunshine of glory into your soul, and in six months you shall be well and happy, with a new husband by your side." And it was so.

Evidence of the potency of this cure is abundant.

Rochard says: "Every one knows the influence over appetite and good digestion that every individual has who is present at a dinner and makes it gay by lively conversation. The very fact of eating in good company has a most favorable effect on dyspepsia. Such persons should never eat alone or with gloomy people."

Noirot states: "Nothing facilitates digestion as much as gayety." Récamier, the great French physician, ordered for a marquis, who was suffering from indigestion, that the drums should be beat during his meals. He told him that his stomach needed the rhythmic movements given by sound to assist his digestion, and it produced a cure.

Lord Lansbrow, says Pope in his *Moral Studies*, was ordered by his doctor to dance when he had an attack of gout, and to sing at the same time. He had so much confidence in gayety as a cure that, after the death of the Prince of Denmark, he asked a special interview with Queen Anne, who was then in deep melancholy, and told her she should order in the violins and have music, so that her precious health should be preserved.

Dr. Thomas, a well-known physician of our times, employs laughing as a cure in cases of pleurisy when thoracentesis has been performed. The lungs under this effusion are thrown against the vetebral column, as we all know, and they do not take their proper position readily, so that air only escapes from them with difficulty, as is seen by the patient's breathing. Well, if they can be made to laugh at such a time, by the convulsive movements of the glottis the air is held in the lungs and forces the folds to open and the alveoli are cleared, while the case is cured by gayety.

Laughter is indeed a stimulus for the whole economy, and it gives little shocks to the chest that are exceedingly useful in bronchitis with catarrh. Dr. Dennis Prudent Roy in old times knew this, and made his bronchial patients laugh so that they threw off the catarrh from the lungs and were cured.

Descuret relates: "A laugh not only produces an acceleration of the circulation, but also gives the muscles a shock that is of the greatest benefit to them, superior in every way to other exercises that do not make all the muscles move."

Pechlin reports a young soldier who had a wound in the chest and was abandoned as dying. His comrades who were watching with him, finding that one had fallen asleep, amused themselves with painting his face with the candle soot; this made the sick man laugh so that he vomited blood, and was completely cured by his gayety.

A man had a fishhook in the throat that seemed impossible to extract. The surgeon finally tickled his feet, and he laughed and threw up the hook.

A priest had an abscess of the pharynx, which was chocking him to death. On this his servants at once began to take possession of portions of the furniture, and a pet monkey of his imitated them by grabbing his hat and putting it on. This made the priest burst into a fit of laughter and his abscess broke, resulting in immediate cure.

Dr. Richarand relates that he saw the same thing happen to a patient who had an abscess by congestion, and which broke on his laughing.

Dr. Barthez tells of a patient of his, named Asti, who was reading an amusing book, and found that a vomica broke and cured him. Erasmus tells the same thing in his works.

Professor Chopard recommended laughing to prevent the localization of this affection on the mesentery, and certainly this would be better than confining consumptives in hospitals where all is dark and dreary.

"Cheerful patients generally get well," says Gabelais, and we can add that the lively people seldom get ill, and then they have it light. One of the best writers in medicine said that he knew another doctor who had reached the age of eighty-three, and claimed that three rules of hygiene had prolonged his life; they were: To eat little; take much exercise, and be gay.

It does us good to be humiliated betimes, by being shown our faults. If we were not sometimes made ashamed of follies, and blunders, and ignorance, we should get proud and unsympathetic and overbearing, and lose many a hint for improvement. Therefore, when we do err in tongue or hand or step, let us be honest enough to admit it, and try to avoid it in future. It will do us good, and do others good.

HINTS.

Mind your business and your business will mind you.

* * *

Do not brag too much of what you have been or of what you are going to be, but show by what you do, what you are now.

* * *

If any one is accustomed to the use of gutta-percha, he can seal cavities, in my opinion, just as rapidly with it as with cotton and sandarac, and the cavity will be more perfectly sealed and the dressing less offensive on removal. *C. N. Johnson.*

* * *

Try to find out the business for which you are best adapted, and stick to that one thing. A young man should have a real love, amounting to a passion, for his calling.

* * *

A GERMICIDE.—The investigations of Drs. Abbott and McCormick, of the Johns Hopkins University, show that a solution containing 7 per cent of acetic acid is more effective as a germicide than bichlorid of mercury.

* * *

TO CLEAN PLASTER CASTS.—White plaster casts may be cleaned by making a thick paste of cold starch, with which the figure should be covered, using a brush for the purpose. When the starch dries, knock it off in light flakes and brush with a clean, soft brush, or wipe with a clean cloth.

* * *

It seems to have been satisfactorily settled that 10 per cent of aluminum is the limit of its usefulness as an alloy, and, on the other hand, it is a useful addition to other affiniating metals to the same extent only. This seems to be true of an alloy of which aluminum is a component.

* * *

CINNAMON DRINK FOR FEVER PATIENTS.—Cinnamon tea is recommended by a Southern physician as a valuable drink in fever-affected districts. It possesses an especial virtue against typhoid fever, and essence of cinnamon is said to be one of the best of disinfectants to use in the sick room of a typhoid patient.

* * *

Do not display your faults or weaknesses nor even your troubles and pains. The world is more interested in your successes and your cheer. Laugh with them and they will laugh back; weep and they will turn away. Weeping, like anger, is a very expensive indulgence.

Be thankful for troubles and disappointments, losses and crosses, or rather for the lessons you may learn from them. They are often the best things that could happen to build up character and stimulate industry. To have our own way uninterruptedly would be the worst thing that could happen to us. We should surely be spoiled. How often children are spoiled in this way, and we are but children of a larger growth.

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Perhaps it is well we cannot better see our defects. Some of us are such blunderers we should be utterly discouraged if we could see ourselves as others see us. But supposing ourselves to be pretty clever, we boldly undertake what superior workmen would hesitate to do, and what would abash us if we were not ignorant of our ignorance. Our self-complaisance saves and encourages us.

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THE ASSIMILATION OF MINERALS.—A recent writer in the ITEMS OF INTEREST has truly said that we have little power to assimilate minerals taken as mere separate chemicals. It is principally by their being assimilated first into vegetable life that they are capable of becoming an integral part of our animal economy; they are made still more easily digested by us if they come from the vegetable through the higher organization of the lower animals. The flinty rock becomes the silica of the teeth by becoming first the silica of the wheat. Iron is hard to chew, and almost as hard to digest as a powder, but presented as beefsteak it easily enters every tissue of the body.

* * *

DELUSIVE PAIN.—One of the worst cases of excrutiating pain I have ever known was of pure delusion. In examining a lady's mouth with a mirror she imagined that I was extracting her teeth. She broke away, left my room wringing her hands in agony, and crying aloud that I had broken her jaw and nearly killed her. It was several minutes before her husband and two lady friends could bring her back, and convince her that not even any attempt was made to work for her. Finally, when she had "come to herself," she submitted to the extraction of several teeth with unusual fortitude. Things are as we see them—to us.

* * *

It is not worth while endeavoring to recover the separate metals from old amalgam. But if the amalgam is placed in a crucible, the crucible put into the middle of a clear hot fire, with good draft, the mercury will pass away as vapor, leaving the melted alloy at the bottom, which pour, file, clean with magnet for iron, and find as good as when new.

The key to success in any department of life is self-denial. Idleness, laziness, wastefulness, come from lack of it; while industry, promptitude, economy, thrift, and a successful career are the result of it.

* * *

Dr. Egbert, Surgeon-in-Chief of the Hampshire Eye and Ear Infirmary, treats of the preservation of hearing in the *Dietetic and Hygienic Gazette* of that city. He shows that the foundation of deafness is often laid in the cutting of the first teeth; that the cutting of the second teeth often does still more harm; that the ears are often affected by scarlet fever, measles, diphtheria, whooping-cough, and mumps; and that during attacks of these diseases the ears of children should be frequently examined and, if necessary, treated. He holds that the heads, both of children and adults, should be protected from chilling drafts and cold winds, and that the practice of stuffing the ear with cotton is not to be encouraged, as it shuts up passages which nature intended air to enter. Concerning a common practice, he says: "Probing the ear with ear spoons, pins, toothpicks, and such things is decidedly dangerous, and should be avoided," and gives many recommendations of much value.

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Making Steel Crown Dies.—The making of steel crown dies and the use of a block of wood as a counter die has not, to my knowledge, appeared in any of the dental journals.

To make a steel die that will never wear out, procure a piece of round stuff, half-inch for molars, three-eighths for bicuspids. Take them to a blacksmith and have them cut into as many three-inch pieces as you want dies. Each piece is then heated to redness and one end driven into the crown die-plate, which will give a steel cameo of the cusps and sulci complete. The dies are afterward placed in a vise and filed to any shape or size desired, being careful not to get the neck smaller than the crown.

For either the steel or fusible metal dies, a block of close-grained pine or spruce is all that is necessary for a counter. By driving the die into the end of the block you have as fine a counter as one could wish. A little oil placed in the counter will prevent crown from sticking.

A draw-plate is very handy with these dies, but is not necessary, as a piece of plate may be drawn down into shape over a series of hard wood mandrels, driven carefully into different sized holes in the block. *Frank B. Norris, Helena, Mont.*

FOR OUR PATIENTS.

MY TOOTHACHE.

Stepping, running, flying—on we go.
Throbbing, beating, thumping—here we are.
O the dreadful road to reach relief,
When a jumping, thundering toothache comes.

Ah, what charming, calming lullaby,
Is the very thought of pulling teeth!
How the thought of those dread instruments
Drives out all the dreadful sense of pain!

But delusive is the dreadful calm—
That tremendous toothache comes again—
Worse than ever is the raging pain;
And we go again for ease and rest.

Now it comes! O fool; it does not come!
Shiv'ring toothache makes us cowards, all.
Willing, then unwilling; yes, and no;
Now take hold—no, let go! Now, you may;

No, you shan't. "Be gone, you wretch," he said.
O my dreadful toothache crazes me!
Now I come again—a jerk; 'tis out!—
Quickly I am changed from fool to man.

Welch.

Carry your child early to the dentist that the very first symptoms of decay may be detected and checked. It will not do to rely on your own judgment as to the real condition of the teeth. Decay is so insidious, and due to so many remote and perhaps hereditary causes, that, notwithstanding all your care, it may obtain a foothold all unsuspected by you, to be discovered only by the trained eye and delicate touch of the instrument of the skilled dentist.

The integrity and regularity of the second set, as well as the health of your child, depend so much on the condition of the first set, that there should be no guess-work about these baby teeth. Take your child, therefore, regularly to the dentist, every few months after it has a mouthful of teeth.

Letters from a Mother to a Mother, Fourth Edition.

MISFITS.

How many misfits there are, and how awkward and unfortunate they appear, whether in dress, character, business or companionship. The idea of a man with a short and a long leg to his breeches! Yet this is not so bad as a woman with the lips of an angel and the mouth of a tomb. The idea of a stylish horse harnessed up with an old cow! Yet this is not half so bad as a clean man harnessed up with the devil, whether in business, religion or politics. The idea of a lovely girl wedded to an old crank! Yet this is not equal to a man or woman so made up that we can see in their character both heaven and hell.

Oh, for the fitness of things that shows us the beautiful harmony of love without the ugliness of anger, purity without filth, nobleness without weakness, making us turn away in disgust! Oh, for the fitness of things that makes us walk in dignity without being so easily tripped up by little foiables; that shows us a man standing firmly on the rock of truth and right without stones in his hands to throw at every passer-by; that allows us to sit down by kindly, loving, useful characters, and hug them without fear of bristles.

My friend, seek manhood in its wholeness; be an all-round good workman; take in life in its entirety. Shake yourself of the little faults, the small impediments, the little spots of meannesses that only your best friends can see,—anything, everything that does not fit a noble character. For instance, what a misfit tobacco would be in the lips of a refined lady, just as it is in your lips, if you are a refined gentleman. How would an oath, or coarse language, or vulgarity sound from the mouth of your wife or lover? Just as it does from your mouth if you are what you ought to be. Oh, do not spoil yourself with misfits!

SAWDUST BREAD.—Leon Lilienfeld, a young chemist and assistant of Prof. Kossel, has made a discovery which scientists here deem of great importance for the future, though in itself it is, perhaps, not of great moment. He has succeeded in preparing artificially a chemical product which possesses all the properties of soluble peptones, including those of easy digestibility. Werner von Siemens, it was who, in 1886, prophesied that chemistry by-and-by would be able to prepare, out of waste material in nature, food stuffs, suited to the human palate and stomach. This discovery

by young Lilienfeld is looked on here as the first step in that direction. The second one perhaps, is the invention of "wood bread," more correctly speaking, sawdust bread, which is now being baked in a Berlin establishment at the rate of 200 hundredweight a day. The mixture is two-thirds to three-fourths sawdust, and one-third or one-fourth rye flour. By a chemical process the sawdust loses its texture and taste, and liberates its saccharine and nutritive elements, which, in combination with the rye flour, are baked into biscuits and bread. The price of this bread is five marks ($1.25) per hundredweight. Thus far it has been used solely as food for the horses of the large Berlin horse-car company, one horse disposing of from twenty to thirty pounds of this delicacy a day. *Evening Post.*

A remarkable case, and one which may be termed a freak, recently came under my observation.

Mrs. G., thirty-five years of age, has one of the "double teeth in front," which so many of us have heard of, but very few have had the rare good fortune to see.

Her lower left lateral and cuspid have formed a perfect union. On the lingual aspect they are so perfectly united as to have the appearance of a single tooth; on the labial surface only a line marks the union. The cusp of the cuspid is well formed.

A close examination of the roots as far down as the patient would permit an instrument, shows them to be united also.

Another noticeable feature is, all the teeth of the lower maxilla have caries, while this strange couple are perfectly sound.

A. A. Powell, Jonesboro, Ind.

PAINLESS EXTRACTING THIRTY YEARS AGO.—"Doctor, I understand you pull teeth without pain, by mesmerism. Is it so?"

It was news to me, but I took in the situation on the instant, and answered: "Yes, madam, that is what I do."

"Now, doctor, is this true, or are you humbugging people?"

"Why, madam, do I look like a humbug; haven't you heard that it is true?"

"Yes, I have, and I've come to see."

I told her to look into my eye without blinking till hers closed, and she would not know when the teeth came out. She obeyed orders, and declared she never felt the pain of extracting.

J. W. Greene.

DANGER IN COCAIN.

Though cocain has been known as a valuable agent for some years, the number of so-called secondary or amorphous alkaloids remains yet a subject of doubt to chemists. There are known to be several, and recent researches by Liebermann, Liebreich and others, prove that one of these amorphous alkaloids, *viz.*, iso-atropyl-cocain, is a violent cardiac poison. This alkaloid occurs in coca leaves in very minute quantity, as a rule, but some specimens contain more than others; its separation is difficult, and it enjoys the reputation of being the least easily detected of all the coca bases. Even if we were not positive that the secondary bases exhibited a pernicious effect, they must be looked on as suspicious, and a cocain demanded from which they are removed. We do know the presence of even small quantities of these amorphous bases is responsible for untoward and seemingly inexplicable results that often follow the administration of supposedly pure cocain preparations.

Recently the editor of the *Medical Age* learned of two apparently mysterious deaths which were in reality the result of the use of impure cocain by dentists for its benumbing effect in the extraction of teeth—in both cases the drug was injected into the gum. In one instance death occurred within a few hours after the teeth were drawn; in the other the lady lingered for about thirty-six hours, and all the resources of the medical art were unable to stimulate a heart that had been fatally poisoned owing to a pre-ponderance of iso-atropyl-cocain.

These facts should put the practitioner on his guard and induce him to demand a cocain that is free not only from secondary alkaloids, but from such inorganic substances as sodium, calcium, etc., that are necessarily employed in the process of manufacture. *Medical Age.*

During the engagement in Washington, D. C., of Kellar, the magician, he, in company with some of his friends, visited the Central Market. He was very much interested in the rows of old colored women who crouch along the B street side, behind bunches of sassafras root, red peppers, onions and a few eggs, which seem to constitute a never-failing source of income. Going up to one of the old crones, the wizard said:

"How much are your eggs, aunty?"

"Twenty-three cents, honey," was the reply, as she calmly continued sucking her pipe.

"I'll try a half dozen," and Kellar proceeded to crack one, and in addition to its legitimate contents, a gold dollar came out of the shell, another was broken and a $5 gold piece came to light, one more and a golden eagle was hatched. By this time the old woman was in a state of tremulous excitement; her pipe had fallen to the ground, spectacles were on top of her turban, and sassafras, onions and peppers were overturned on the sidewalk, in her endeavors to get a closer view of "them aigs."

"How much will you take for the rest?" said a by-stander, indicating a few left in the basket held in the old woman's arms.

"'Deed, chile," she said, with emphasis, "dese here aigs ar'n't fuh sale."

A NOVEL ANESTHETIC.—He had adjusted himself in the chair and was in the act of opening his mouth for my forceps, when he suddenly bethought himself: "Hold on, doctor, a moment! I never go into any serious undertaking without asking my Maker to see me through." He got out, kneeled at my chairside, and prayed that it would not hurt—and he declared that it did not.

J. W. Greene.

She couldn't be impressed that "anything was the matter," till assured that she had an aggravated case of chronic pyorrhea alveolaris and stomatitis catarrhalis, with a happy school of micro-maggots in every drop of secretion in her mouth.

"Oh, doctor, if I have that, for God's sake cure me as quickly as you can!"

Ten dollars.

The West shows wonderful development. We have but to read the proceedings of their State Dental Conventions to see their brainy productions. The Transactions of the Illinois State Dental Society of 1894 is a dental text-book, so full is it of dental wisdom. Our journals are doing a great work, but much credit must be given to these associations for the discussions and dissemination of current dental thought through their annual reports.

According to statistics, the consumption of gold in the United States for purposes of dentistry, aggregate about eighteen hundred pounds annually. This is the reason, perhaps, that the gold reserve in the National Treasury has been gradually decreasing. We do not think there is any cause for alarm, however, in the exhaustion of this metal so long as the "Bull and Bear" gold mines are productive.

NEW PUBLICATIONS.

MANUAL OF OPERATIVE TECHNICS, A PRACTICAL TREATISE ON THE ELEMENTS OF OPERATIVE DENTISTRY, by Thomas E. Weeks. H. D. Justi & Son, Philadelphia. Price, cloth, $2.00.

Dr. Weeks is a strong young man, whether measured by his works or his words. As an operator, he is head and shoulders above the multitude; as a scholar and teacher, he is among the rising men of his age; and in originality, tact and independent thought, he is developing wonderfully. This book is an evidence.

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DESCRIPTIVE ANATOMY OF THE HUMAN TEETH, by Prof. G. V. Black. Published by The Wilmington Dental Manufacturing Company. Price, cloth, $2.50.

This is the third edition in less than three years, which speaks well for its reception by the profession. In fact, to know the man, is to know that the work must be good, thorough and complete.

Dr. Black found it difficult to describe the teeth minutely, concisely and precisely, by the terms found in our text-books. As a ripe scholar, a close observer, and a skilful systematical workman, he has tried to supply this need. That he has done his work well is attested by the popularity of his book.

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A casual observer may suppose we are getting a suffice of pyorrhea, but really the essays and discussions and books on this subject show its importance, and they are giving us knowledge and skill that is helpful. The success of these specialists are stimulating us to emulation.

We have now to introduce our readers to Dr. J. E. Cravens' treatise on this disease, "A System for its Prompt, Positive and Permanent Cure." Those who have noticed the various articles and discussions in our journals on pyorrhea, will have observed that Dr. Cravens has been prominent as a debater and essayist, and he has made it a specially in his practice.

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COMPEND OF DENTAL PROSTHESIS AND METALLURGY. By Prof. George W. Warren. Published by P. Blakiston, Son & Co., Philadelphia.

This book, as a compend or brief statement, is well adapted for the dental student. Some of its statements and manipulations might be questioned; but this is inevitable in a profession progressing so rapidly as ours. In celluloid work, the swaging process, the continuous gum process, obturators, irregularities, and crown- and bridge-work, the best workers will differ. But, as a whole, the book is food for thought and skill.